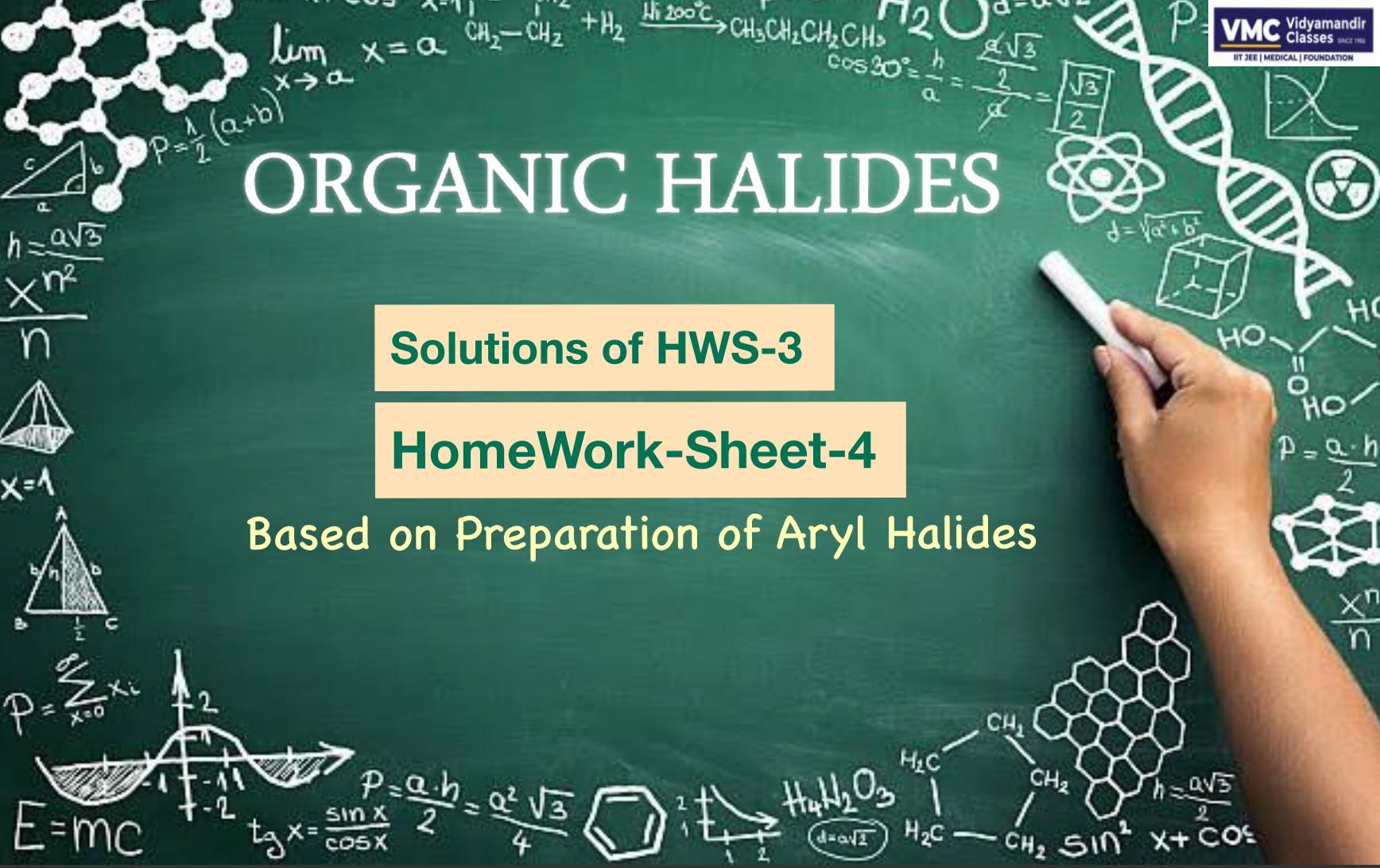


ORGANIC HALIDES

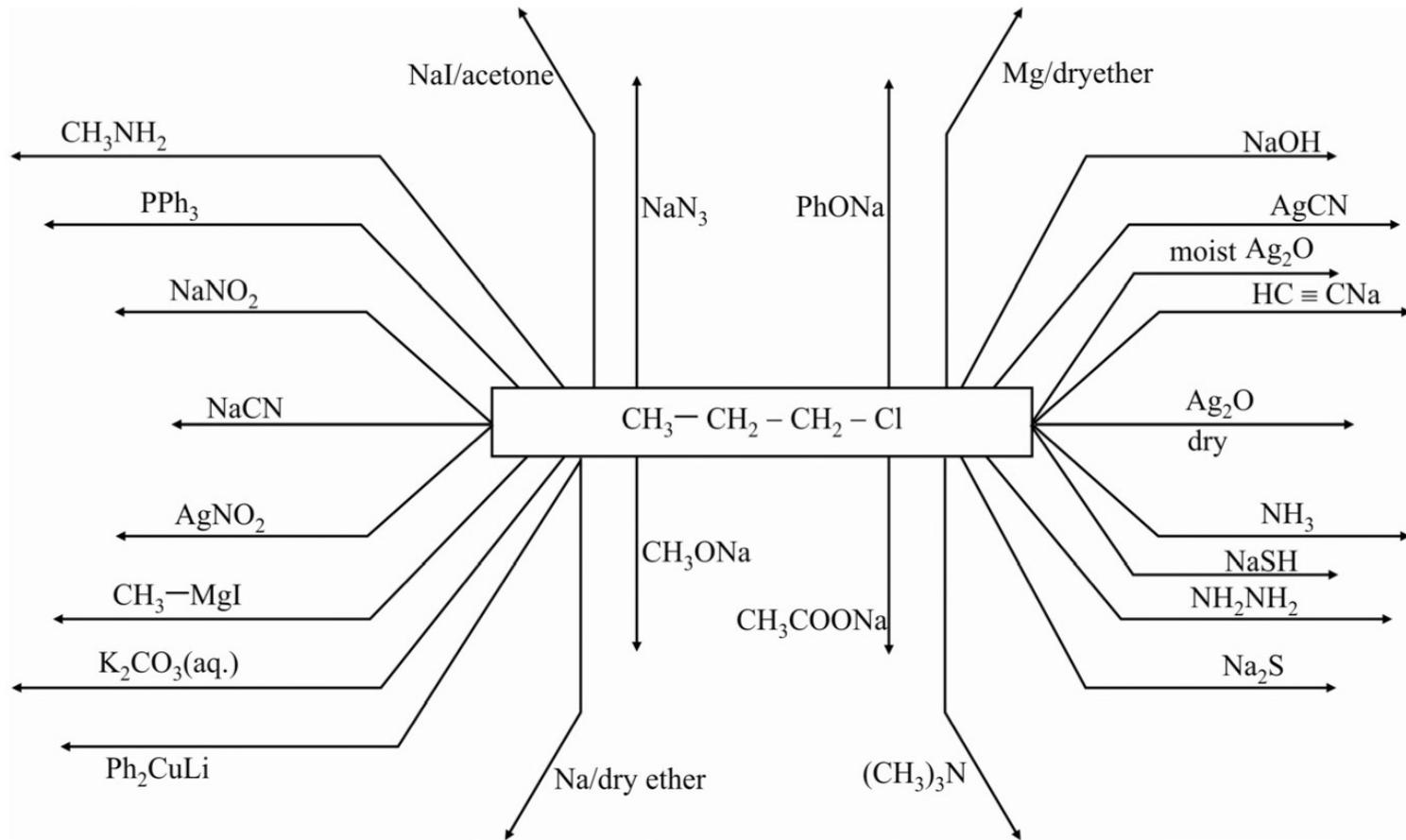
Solutions of HWS-3

HomeWork-Sheet-4

Based on Preparation of Aryl Halides



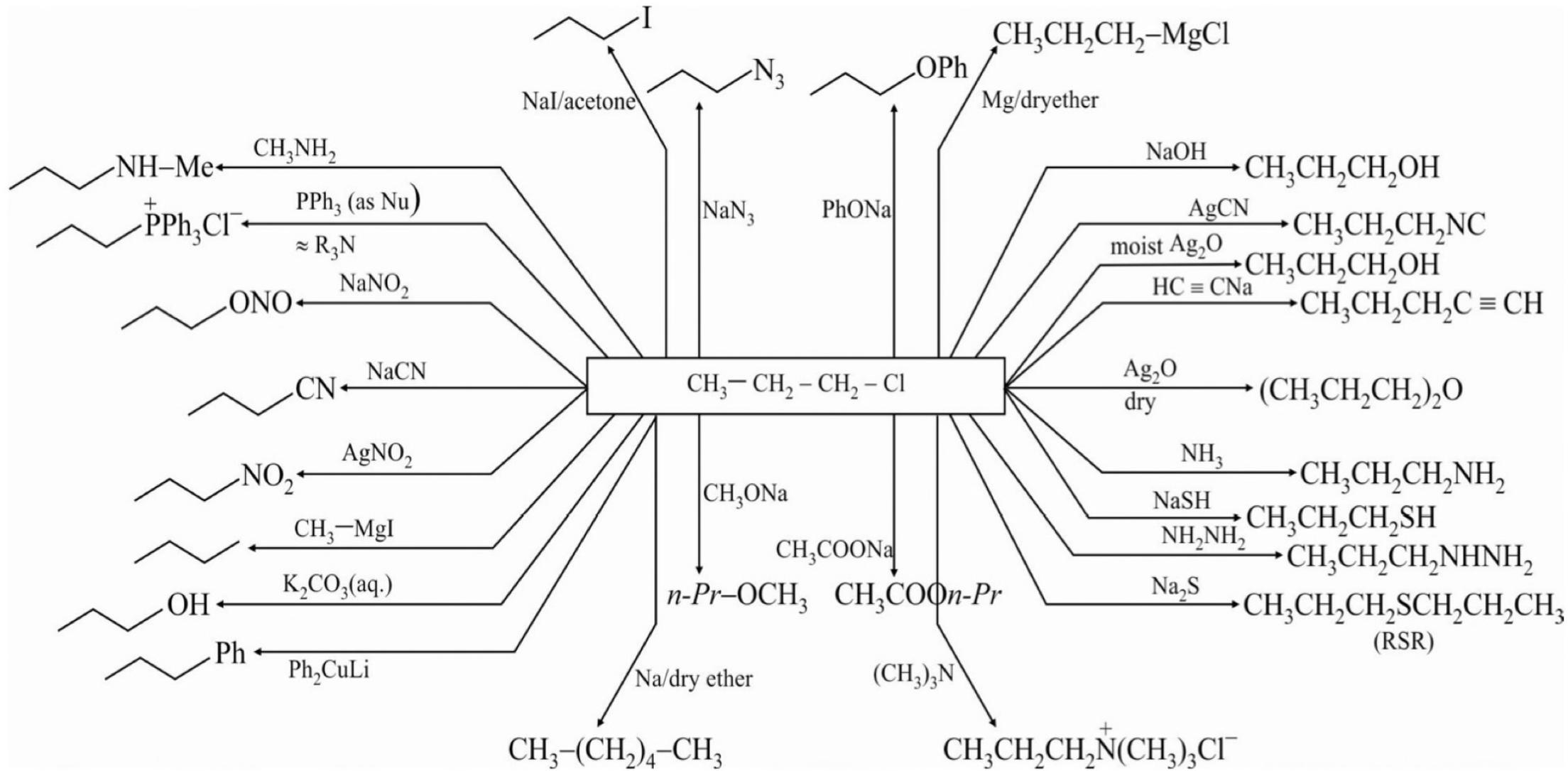
1. Identify the Final Product in the following reactions :



Solutions (HWS-3)

IMP! The reaction (name) list will be given on Wednesday
Thanks! 😊

Q. 1



NCERT Questions:

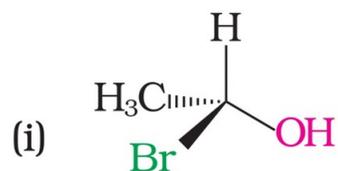
2. Arrange each set of compounds in order of increasing boiling points.

(i) Bromomethane, Bromoform, Chloromethane, Dibromomethane.

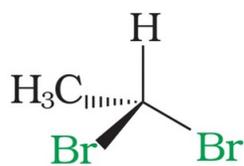
(ii) 1-Chloropropane, Isopropyl chloride, 1-Chlorobutane.

3.

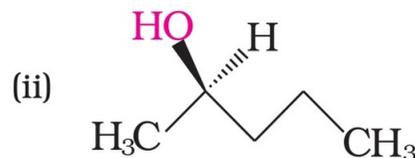
Identify chiral and achiral molecules in each of the following pair of compounds. (Wedge and Dash representations according to Class XI, Fig 12.1).



(i)



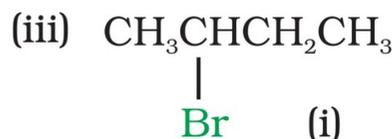
(ii)



(i)



(ii)

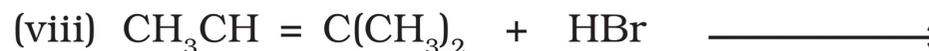
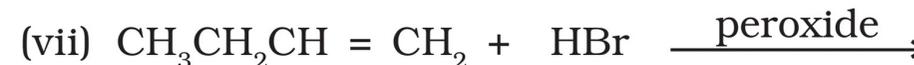
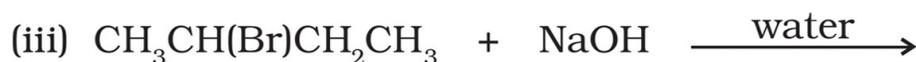
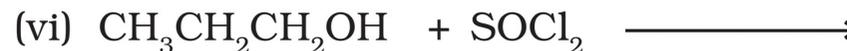
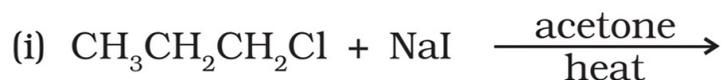


(i)



(ii)

4. Write the structure of the major organic product in each of the following reactions:





observe the increase in molecular mass



branched; less surface area

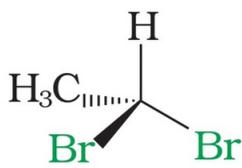
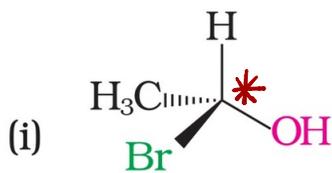
straight chain
more surface area

(highest mol. mass)

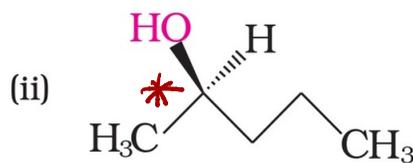
3.

Identify chiral and achiral molecules in each of the following pair of compounds. (Wedge and Dash representations according to Class XI, Fig 12.1).

* Chiral Centre



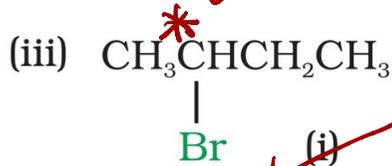
achiral



(i)



achiral



(i)

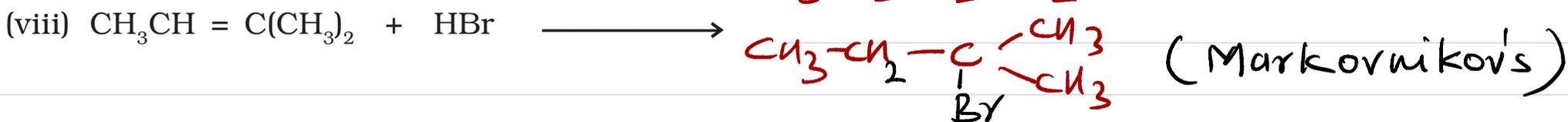
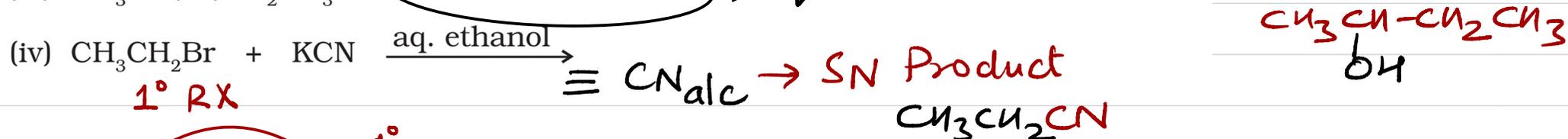
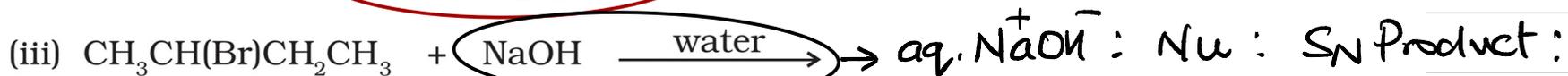
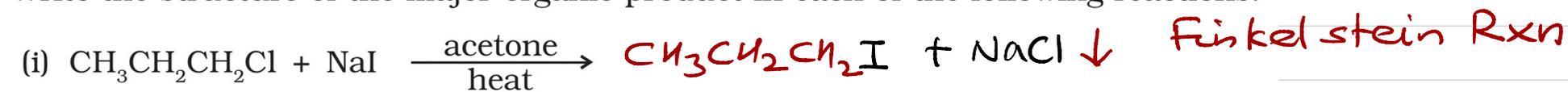


(ii)

achiral

4.

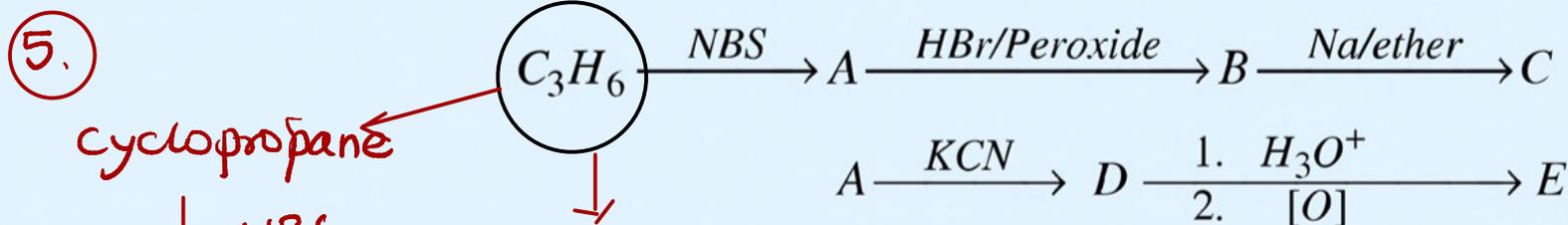
Write the structure of the major organic product in each of the following reactions:



Module Illustrations

Illustration - 1

Identify the compounds A, B, in the following reaction setup.



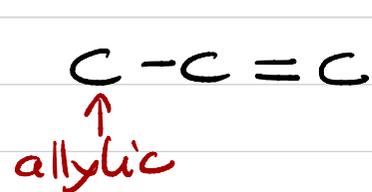
cyclopropane

↓ NBS
No Rxn

⇒ $C_3H_6 \neq \triangle$

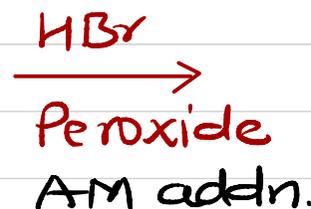
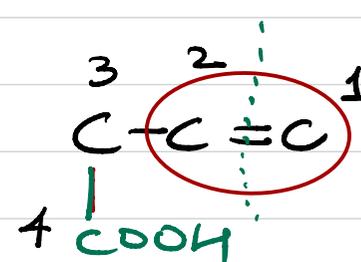
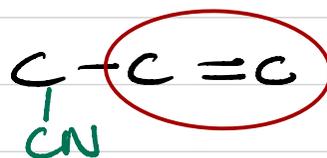
propene

'AM'



(A)

↓ KCN



Na/D.E

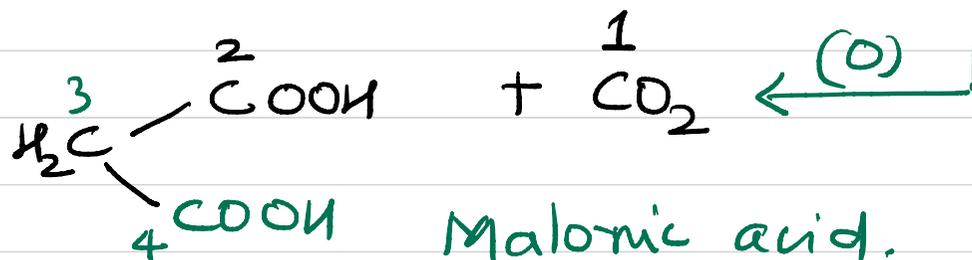
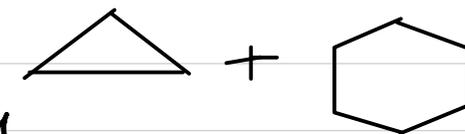


Illustration - 2

Identify (A) to (G) in the following series of reactions. Also identify the major product among F and G.

6.

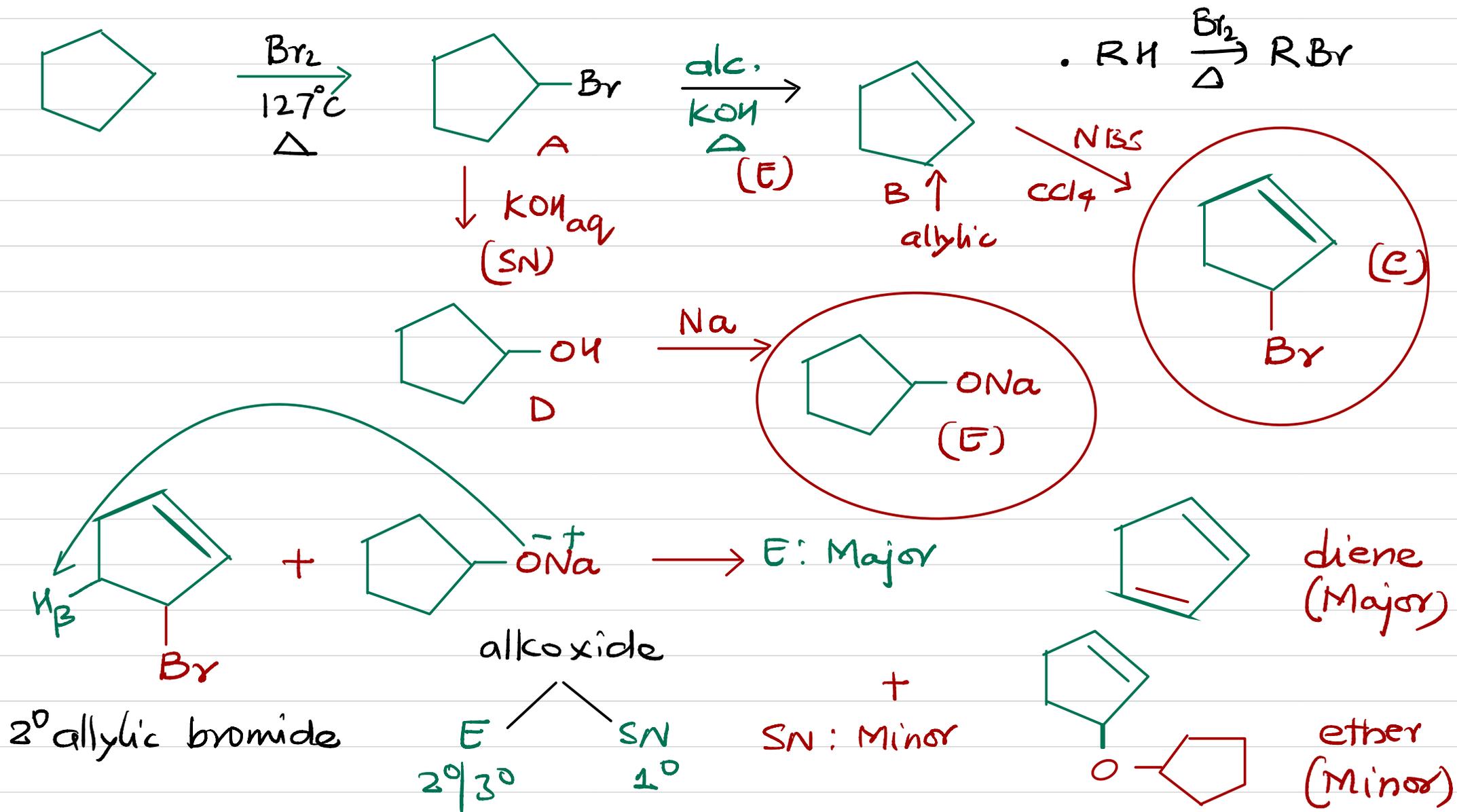
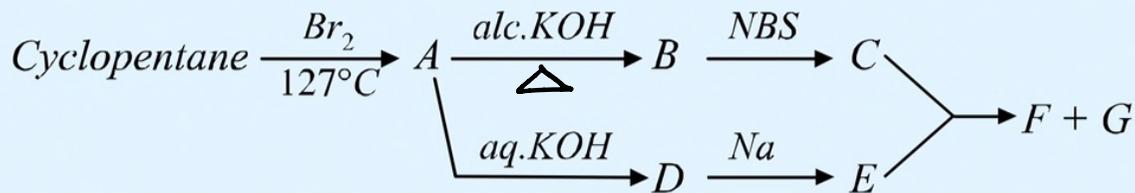
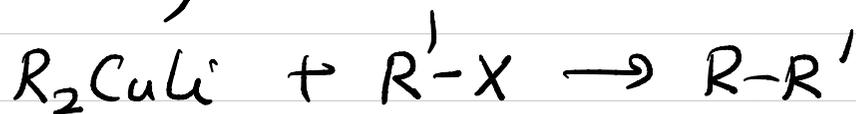
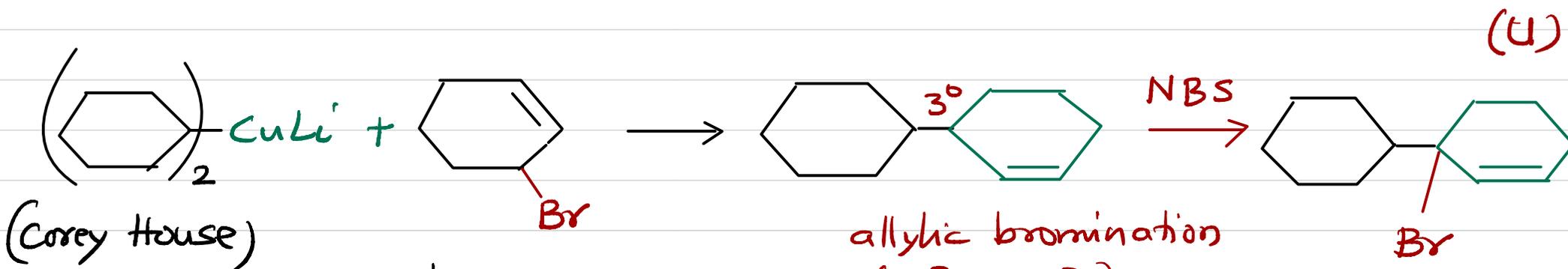
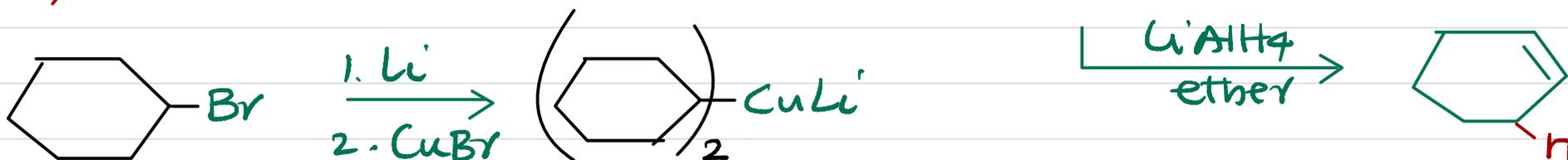
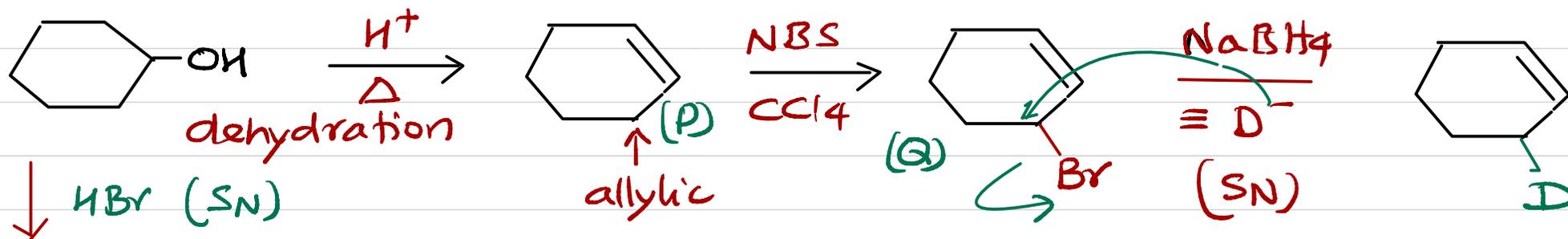
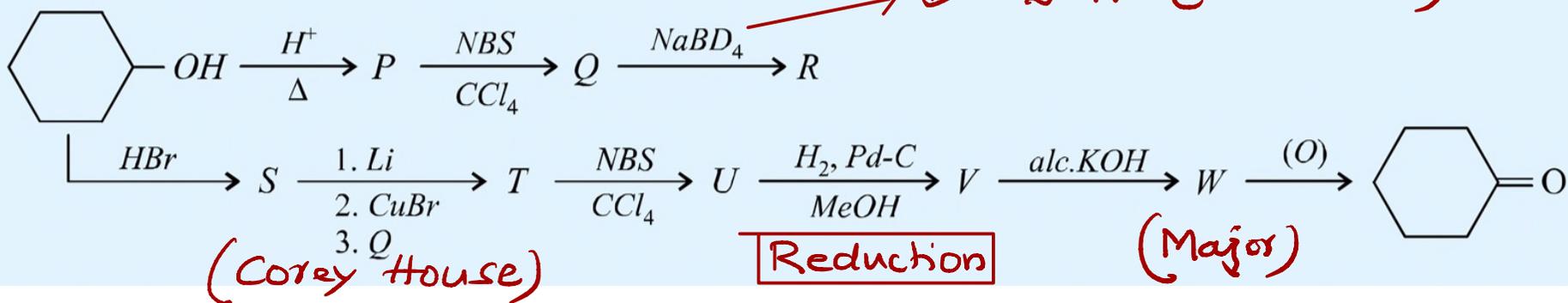
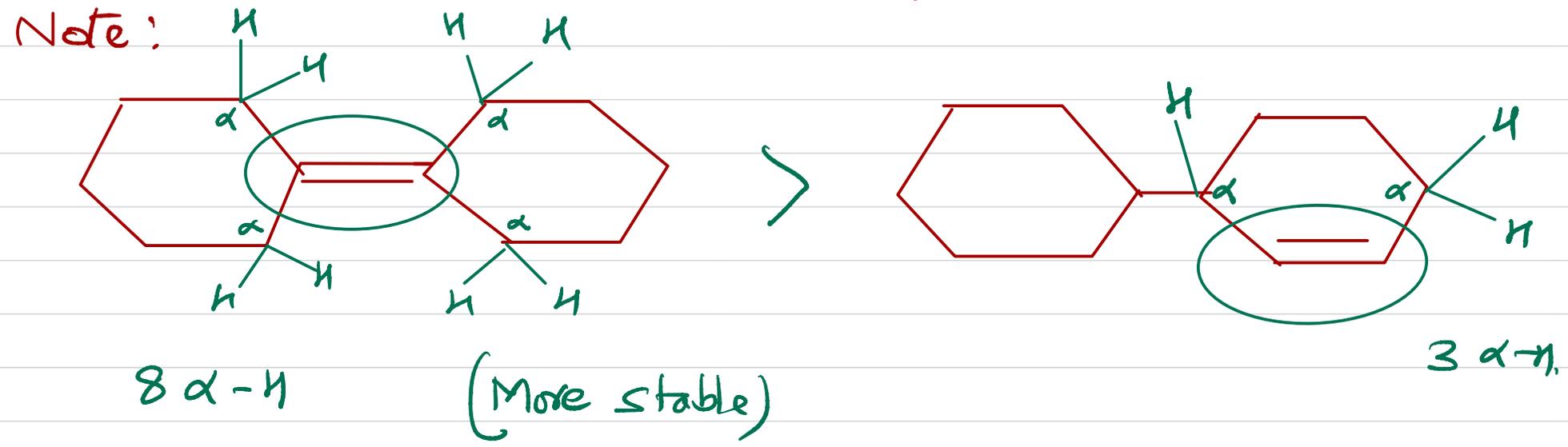
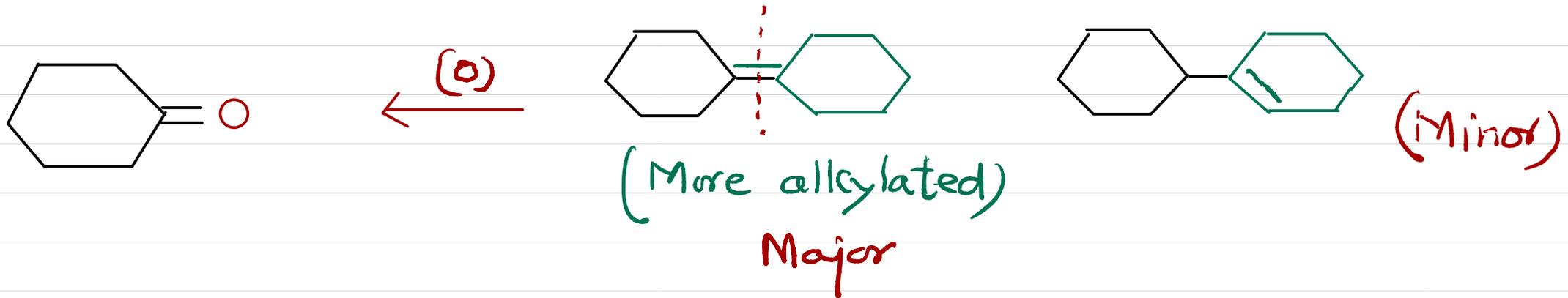
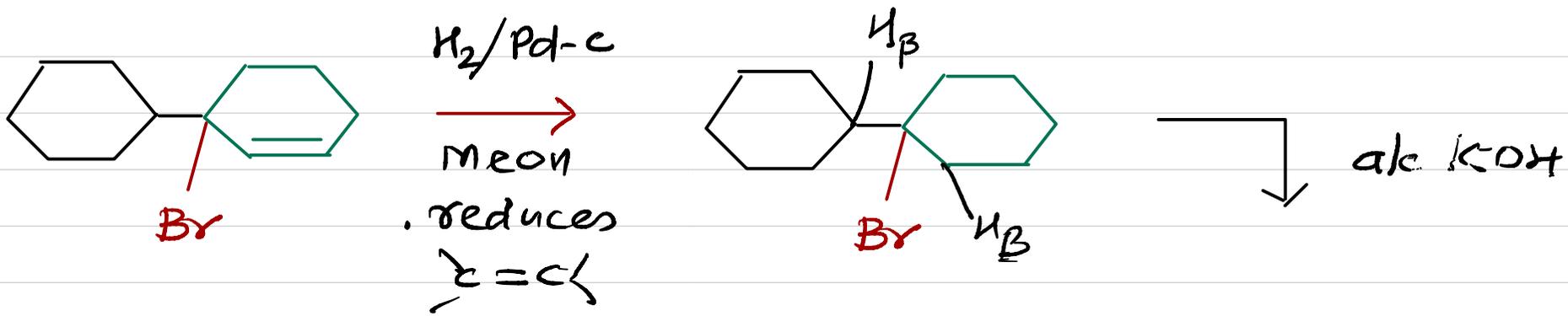


Illustration - 3

Identify P, Q, R, in the following reaction set up.

7.





Module I Illustrations: (Try without referring solutions)

Illustration - 4 How will you convert.

(a) Bromobenzene to styrene (in 4 steps)

(b) Bromobenzene to Benzyl alcohol (in 3 steps)

Illustration - 5 Anisole can be prepared by either of following methods. Which of the two methods is the correct ?

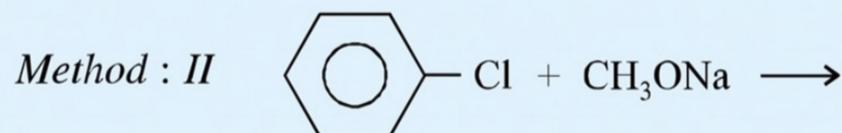
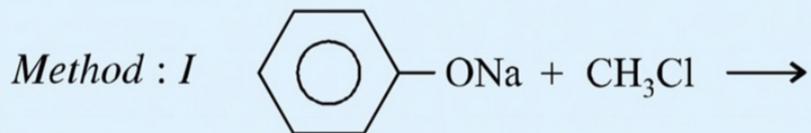
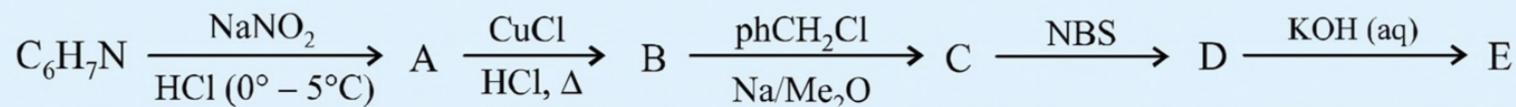
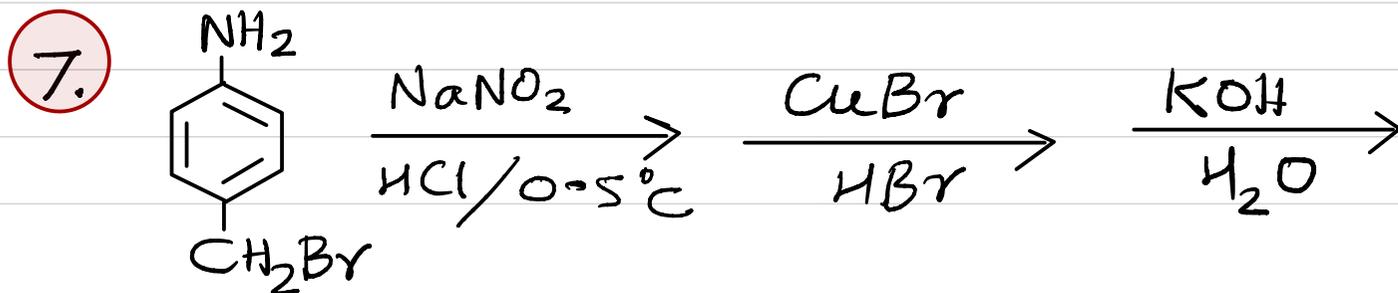
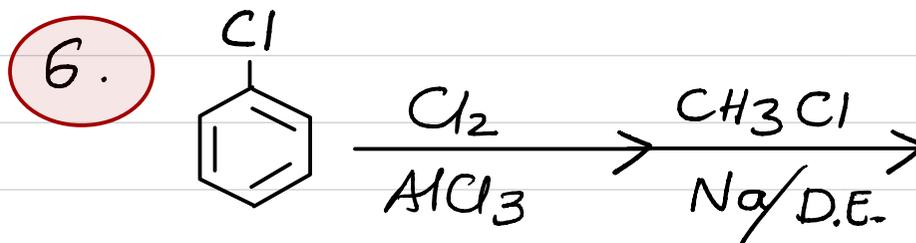
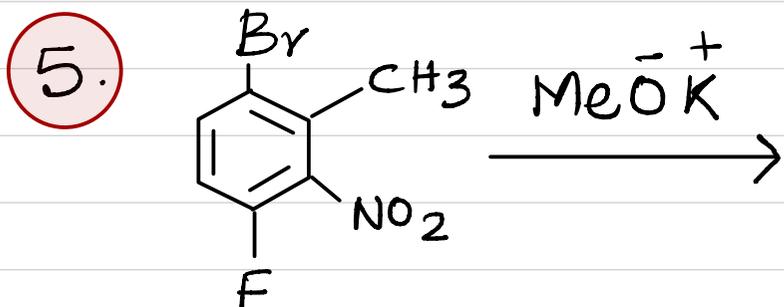
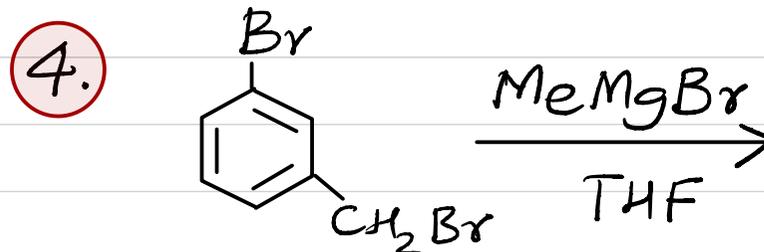
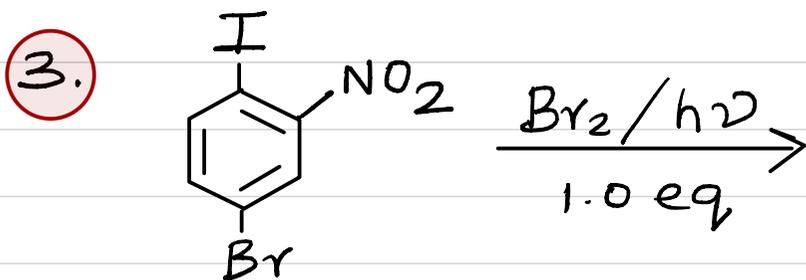
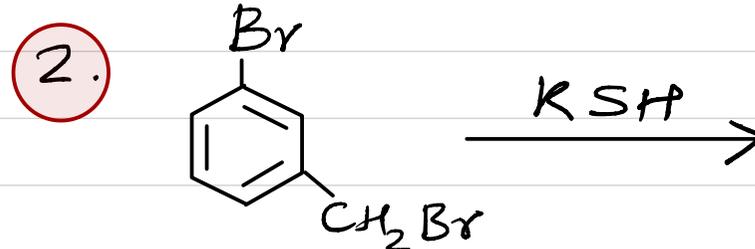
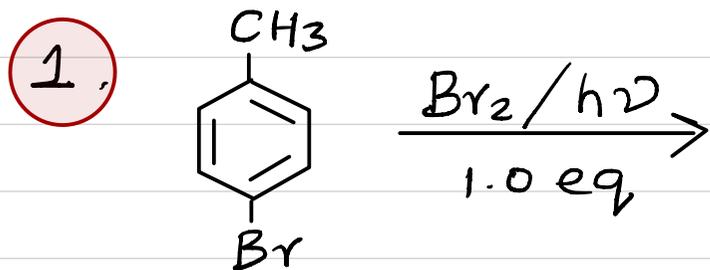


Illustration - 6 Identify A, B, C in the following reaction set up.



Identify the products:



Time: 40-45 Min

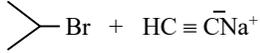
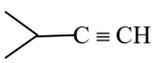
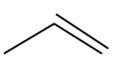
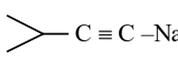
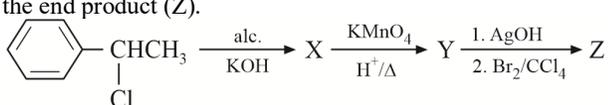
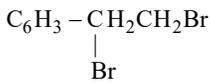
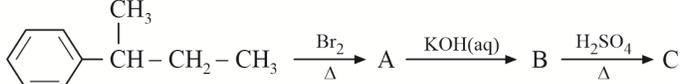
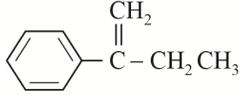
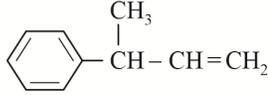
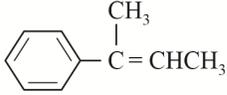
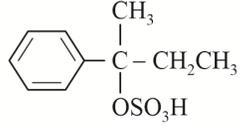
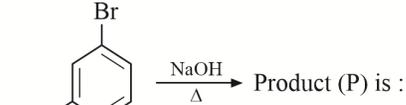
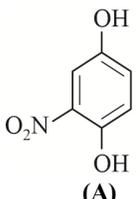
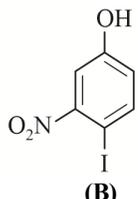
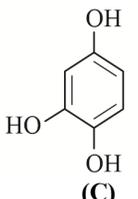
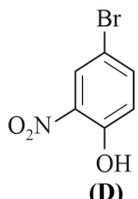
Class Test - 1

Organic Halides

Chemistry

Choose correct alternative for each of the following. The questions marked with (*) may have one or more correct options. Each question carries 3.0 marks each. There is 1.0 Negative Marking for wrong answer.

- The elimination of HX from an alkyl halide forms an alkene. The order of the elimination reactions is :
 (A) 3° halide $>$ 2° halide $>$ 1° halide (B) 1° halide $>$ 2° halide $>$ 3° halide
 (C) 1° halide = 2° halide $>$ 3° halide (D) 2° halide $>$ 1° halide $>$ 3° halide
- Chlorine atom is reactive towards aqueous NaOH in :
 (A) methyl chloride (B) chlorobenzene (C) vinyl chloride (D) benzyl chloride
- Chlorobenzene can be prepared from aniline by making the latter react with
 (A) cuprous chloride (B) hydrochloric acid
 (C) nitrous acid followed by heating with cuprous chloride
 (D) chlorine in the presence of anhydrous AlCl_3
- Treatment of 1-phenyl-2-chloropropane with alcoholic KOH gives mainly
 (A) 3-phenylpropene (B) 1-phenylpropene
 (C) 1-phenylpropane-3-ol (D) 1-phenylpropan-2-ol
- Which of the following reagents can be used to prepare an alkyl halide from an alcohol ?
 (A) NaCl (B) $\text{HCl} + \text{ZnCl}_2$ (C) SOCl_2 (D) PCl_5
- Which of the following reactions is the most common among alkyl halides ?
 (A) Nucleophilic addition (B) Nucleophilic substitution
 (C) Electrophilic addition (D) Electrophilic substitution
- In the reaction $\text{CH}_3\text{MgX} + \text{CH}_3\text{OH} \longrightarrow \text{A}$, the product formed (A) is :
 (A) alcohol (B) acetone (C) ethane (D) methane
- The reaction of tert. butyl bromide with potassium cyanide gives :
 (A) isobutene (B) tert. butyl cyanide (C) isopentene (D) sec butene
- An organic halide, $\text{C}_2\text{H}_4\text{Cl}_2$, gives an unsaturated hydrocarbon on treatment with alc. KOH, but ethanal on reaction with aq. KOH. The dihalide is :
 (A) CH_3CHCl_2 (B) $\text{CH}_2\text{ClCH}_2\text{Cl}$ (C) a mixture of (A) and (B) (D) None of these
- Aryl halides are less reactive towards nucleophilic substitution reactions than alkyl halides. This is due to :
 (A) the formation of the less stable carbonium ion (B) resonance stabilization
 (C) their longer C-halogen bond (D) inductive effect
- In the reaction : $\text{CH}_3\text{CH}(\text{Br})\text{CH}_3 \xrightarrow{\text{alc. KOH}} \text{A} \xrightarrow[\text{peroxide}]{\text{HBr}} \text{B} \xrightarrow[\text{acetone}]{\text{NaI}} \text{C}$ C is :
 (A) $\text{CH}_3\text{CH}_2\text{CH}_2\text{I}$ (B) $\text{CH}_3 - \text{CH}(\text{I}) - \text{CH}_3$
 (C) $\text{CH}_3 - \text{CH}(\text{I}) - \text{CH}_2\text{I}$ (D) $\text{CH}_3\text{CH} = \text{CHI}$
- The reaction: $(\text{CH}_3)_3\text{C} - \text{Br} + \text{CH}_3\text{ONa} \longrightarrow$ produces mainly
 (A) $(\text{CH}_3)_3\text{C} - \text{ONa} + \text{CH}_3\text{Br}$ (B) $(\text{CH}_3)_3\text{C} - \text{OCH}_3 + \text{NaBr}$
 (C) $(\text{CH}_3)_2\text{C} = \text{CH}_2 + \text{CH}_3\text{OH} + \text{NaBr}$ (D) None of these

13. In the following reaction:  The major product is :
- (A)  (B)  (C)  (D) None of these
- *14. Which of the following can be used as a substrate in Williamson synthesis of ethers ?
- (A) $\text{CH}_3\text{CH}_2\text{Br}$ (B) $\text{CH}_2 = \text{CHCH}_2\text{Cl}$
 (C) $\text{CH}_2 = \text{CHCl}$ (D) PhCH_2Cl
15. An organic compound A ($\text{C}_4\text{H}_9\text{Cl}$) on reaction with Na/diethyl ether gives a hydrocarbon, which on monochlorination gives three possible mono-chloro derivatives. A is :
- (A) t-butyl chloride (B) Isobutyl chloride (C) n-butyl chloride (D) None of these
16. $\text{CH}_3\text{CH}_2\text{Br}$ can be prepared by :
- (A) $\text{CH}_3\text{CH}_2\text{COOAg} + \text{Br}_2 \xrightarrow{\Delta}$ (B) $\text{CH}_3\text{CH}_2\text{OH} + \text{HBr} + \text{H}_2\text{SO}_4 \longrightarrow$
 (C) Both (A) and (B) are correct (D) None is correct
- *17. Which of the following is(are) sandmeyer reacts ?
- (A) $\text{Ph N}_2^+\text{Cl}^- \xrightarrow[\text{HBr}/\text{H}_2\text{O}]{\text{CuBr}}$ (B) $\text{Ph N}_2^+\text{Cl}^- \xrightarrow[\Delta]{\text{KI}}$
 (C) $\text{Ph N}_2^+\text{Cl}^- \xrightarrow[\text{HCl}/\text{H}_2\text{O}]{\text{CuCl}}$ (D) $\text{Ph N}_2^+\text{Cl}^- \xrightarrow[\Delta]{\text{HBF}_4}$
18. Identify the end product (Z).
- 
- (A) $\text{C}_6\text{H}_5\text{CH}_2\text{Br}$ (B) 
 (C) $\text{C}_6\text{H}_5\text{Br}$ (D) $\text{C}_6\text{H}_5\text{COOC}_6\text{H}_5$
19. Identify the end product (C).
- 
- (A)  (B) 
 (C)  (D) 
20.  Product (P) is :
- (A)  (B) 
 (C)  (D) 

THANK

39 88.906 3338 1.1 1526 Y [Kr]4d5s ² 4.47 3	8 15.999 -182.82 3.5 -222.65 O [He]2s ² 2p ⁴ 1.43 -2	92 238.029 4134 1.2 1132 U [Rn]5f ³ 6d7s ² 19.0 3,4,5,6
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