



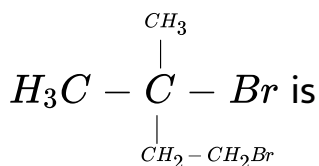
## CHEMISTRY

### BOOKS - MTG WBJEE CHEMISTRY (HINGLISH)

### HALOALKANES

Wb Jee Workout Category 1 Single Option Correct Type 1 Mark

1. The IUPAC name of the compound,



A. 1,3-dibromo-3-methylbutane

B. 3-methyl-1,2-dibromobutane

C. 3-methyl-1,3-dibromopropane

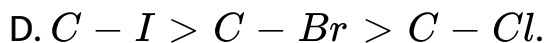
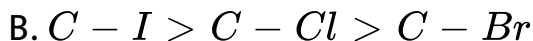
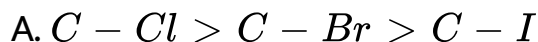
D. none of these.

**Answer: A**



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2. Amongst the C-X bond ( where X = Cl, Br, I), the correct bond energy order is



**Answer: A**



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**3.** The fire extinguisher 'pyrene' contains

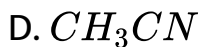
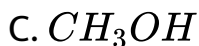
- A. carbon dioxide
- B. carbon disulphide
- C. carbon tetrachloride
- D. chloroform.

**Answer: C**



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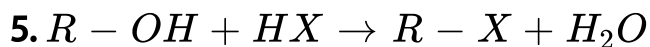
4. Which one of the following compounds when heated with KOH and a primary amine gives carbylamine test ?



**Answer: A**



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In the above reaction, the reactivity of different alcohols is

A. tertiary > secondary > primary

B. tertiary > secondary < primary

C. tertiary < secondary > primary

D. secondary < primary < tertiary.

**Answer: A**



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**6. Butane nitrile is formed by reaction of KCN with**

A. propyl alcohol

B. butyl chloride

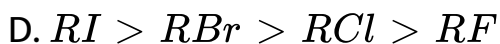
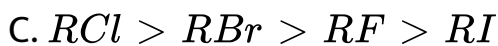
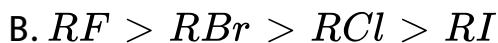
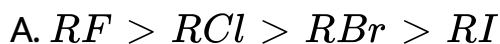
C. butyl alcohol

D. propyl chloride.

Answer: D

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7. The order is reactivities of the following alkyl halides for a  $S_N2$  reaction is



Answer: D

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8. Which of the following are arranged in the decreasing order of dipole moment ?



**Answer: B**



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9. Haloform reaction cannot be used to prepare



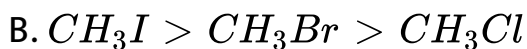


**Answer: A**



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10. The order of polarity of  $CH_3I$ ,  $CH_3Br$  and  $CH_3Cl$  molecules follows the order





D.  $CH_3Cl > CH_3I > CH_3Br$

**Answer: C**

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11. 1,3-Dichloropropane reacts with Zn and NaI and gives

- A. Propane
- B. propene
- C. cyclopropane
- D. n-propyl iodide.

**Answer: C**

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12. Haloform are trihalogen derivatives of

A. methane

B. ethane

C. propane

D. benzene.

**Answer: A**



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13. Haloform reaction is used for preparing

A.  $CH_2Cl_2$

B.  $CCl_4$

C.  $CH_3Cl$

D.  $CHCl_3$

**Answer: D**



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14. The Grignard reagent,  $CH_3CH_2MgBr$ , can be used to prepare

A. ethane

B. 3-methyl-3-pentanol

C. propanoic acid

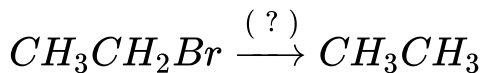
D. all of these.

**Answer: D**



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15. Which is best reagent to accomplish the following conversion ?



A. conc.  $H_2SO_4$

B. Na

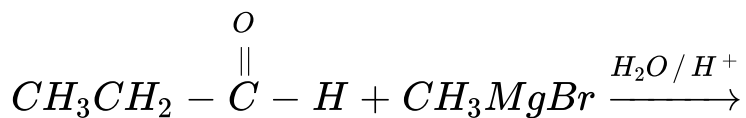
C. conc. HCl

D. Mg, then  $H_2O$

Answer: D

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16. What is the major product of the following reaction ?



A. 1-Butanol

B. Butanal

C. 2-Butanol

D. Butanone

Answer: C

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17. Ethylmagnesium iodide reacts with formaldehyde to give a product which on acid hydrolysis forms.

- A. an aldehyde
- B. a primary alcohol.
- C. a ketone
- D. a secondary alcohol

**Answer: B**



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18. Which of the following compounds will react with methylmagnesium iodide followed by acid-hydrolysis to

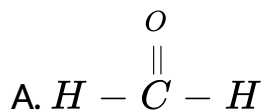
give ethyl alcohol ?

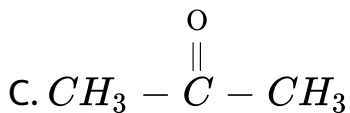
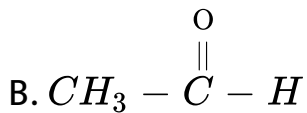
- A. Ethylene
- B. Acetaldehyde
- C. Formaldehyde
- D. Acetone

**Answer: C**

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19. Which of the following gives a tertiary alcohol when treated with Grignard reagent ?





D. None of these

**Answer: C**

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20. The progressive increase in the boiling points from  $CH_3Cl(249K)$ ,  $CH_3Br(277K)$  and  $CH_3I(316K)$  is due to

A. higher polarity of C - I bond and higher molar mass

B. higher polarity of C - I bond and lower molar mass



C. lower polarity but higher molar mass in  $CH_3I$

D. lower polarity and lower molar mass in  $CH_3I$

**Answer: C**

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**21. Which one is correct ?**

A. Freon-14 is  $CF_4$ , Freon-13 is  $CF_3Cl$ , Freon-12 is

$CF_2Cl_2$  and Freon-11 is  $CFCl_3$ .

B. Freons are chlorofluorocarbons.

C. Freons are used as refrigerants.

D. All the above.

**Answer: D**

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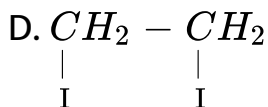
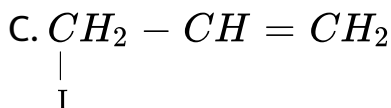
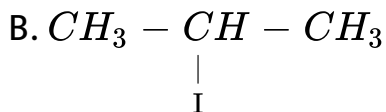
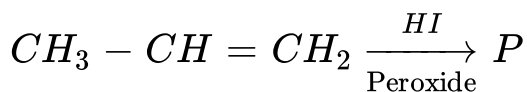
22.  $CCl_4$  is used as a fire extinguisher, because

- A. its boiling point is low
- B. its melting point is high
- C. it gives incombustible vapour
- D. it forms covalent bond.

**Answer: C**

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23. The major product P in the following reaction is



**Answer: B**



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24. Reaction of ROH with R'MgX produces



B. R'H

C. R-R

D. R'-R'

**Answer: B**



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25. On mixing an alkane with chlorine and irradiating with ultra-violet light, it forms only one mono-chloroalkane. The alkane is

A. propane

B. pentane

C. iso-pentane

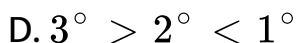
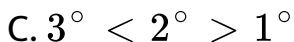
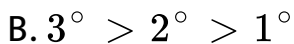
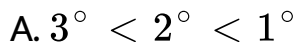
D. neo-pentane.

**Answer: D**



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**26.** The ease of dehydrohalogenation of alkyl halide with alcoholic KOH is



**Answer: B**

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27. Under identical conditions, the  $S_N1$  reaction will occur most efficiently with

- A. tert-butyl chloride
- B. 1-chlorobutane
- C. 2-methyl-1-chloropropane
- D. 2-chlorobutane.

**Answer: A**

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28. In  $S_N1$  ( substitution nucleophilie unimolecular) reaction, the racemisation takes place, It is due to

- A. inversion of configuration
- B. retention of configuration
- C. both (a) and (b)
- D. neither (a) nor (b)

**Answer: C**



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29. The  $C - Mg$  bond in  $CH_3CH_2MgBr$  is

- A. ionic

B. non-polar covalent

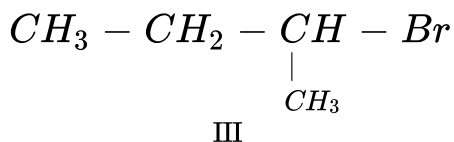
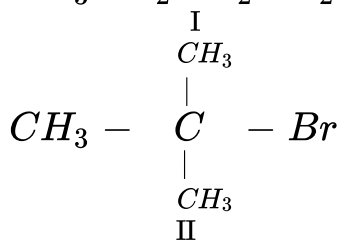
C. polar covalent

D. hydrogen.

**Answer: C**

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**30.** Arrange the given compounds in decreasing order of boiling points.





A. I > III > II

B. II > I > III

C. I > II > III

D. III > I > II

**Answer: A**



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## Wb Jee Workout Category 2 Single Option Correct Type 2 Marks

1. A Compound is formed by substitution of two chlorine for two hydrogens in propane. The number of possible isomeric compounds is

A. 4

B. 3

C. 5

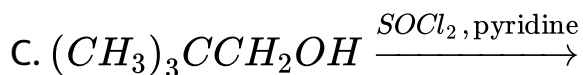
D. 2

**Answer: C**



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2. The best method to prepare neopentyl chloride is





**Answer: D**



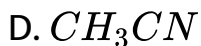
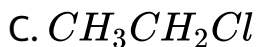
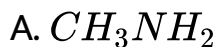
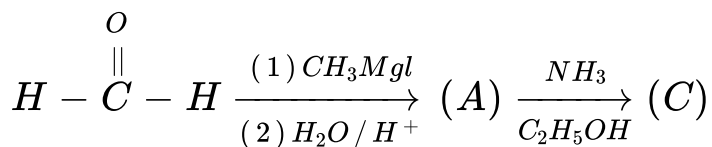
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3. n-Propylmagnesium bromide on treatment with carbon dioxide and further hydrolysis gives

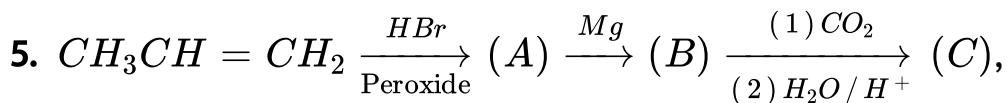
- A. acetic acid
- B. propanoic acid
- C. butanoic acid
- D. formic acid.

**Answer: C**

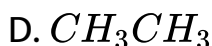
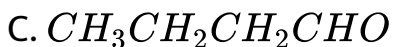
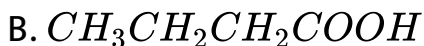
4. Identify (C) in the following sequence of reactions :



**Answer: B**



(C) is



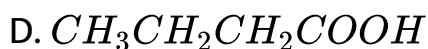
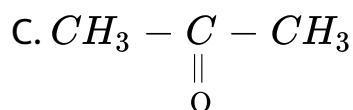
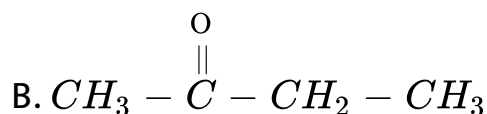
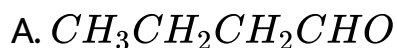
**Answer: B**



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6. Compound (A) reacts with ethylmagnesium bromide to give a product which on hydrolysis yields 3-methyl-3-

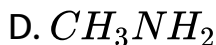
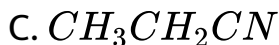
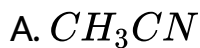
pentanol. What is the structural formula of (A) ?



**Answer: B**

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7. Compound (A) , which is an alkyl cyanide reacts with ethylmagnesium iodide to give compound (B). Compound (B) reacts with dilute HCl to yield 3-pentanone. What is the structural formula of (A) ?



**Answer: C**



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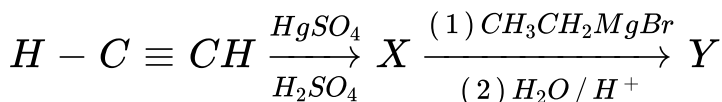
8. A ketone  $C_8H_{16}O$  (A) reacts with ethylmagnesium bromide to give a product which on hydrolysis yields an alcohol (B). Compound (B) undergoes dehydration with concentrated sulphuric acid to form (C) which on ozonolysis gives 3-pentanone as the only product. (A) is

- A. 4-ethyl-3-hexanone
- B. 3, 4-diethyl-3-hexanol
- C. 4-ethyl-3-hexene
- D. 3, 4-diethyl-3-hexene.

**Answer: A**

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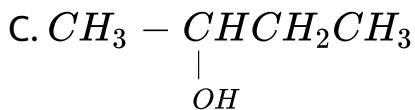
**9.** Identify the final product (Y) in the following sequence of reactions :



A.  $CH_3CH_2CH_2OH$

B.  $CH_3CH_2CH_2OH$



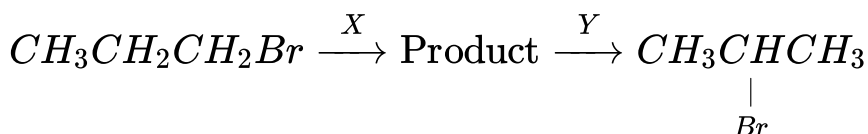


D. None of these

**Answer: C**

 [View Text Solution](#)

10. Identify the set of reagents X and Y in the following set of transformations :



A.  $X =$  dilute aqueous NaOH,  $20^\circ C$ ,

$Y =$  HBr/acetic acid,  $20^\circ C$

B.  $X = \text{conc. Alcoholic NaOH, } 80^\circ \text{C,}$

$Y = \text{HBr/acetic acid, } 20^\circ \text{C}$

C.  $X = \text{dilute aqueous NaOH, } 20^\circ \text{C,}$

$Y = \text{Br}_2 / \text{CHCl}_3, 0^\circ \text{C}$

D.  $X = \text{conc. Alcoholic NaOH, } 80^\circ \text{C,}$

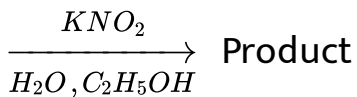
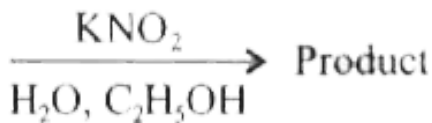
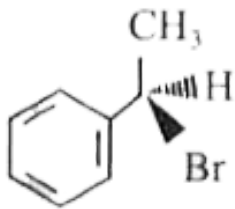
$Y = \text{Br}_2 / \text{CHCl}_3, 0^\circ \text{C}$

**Answer: B**

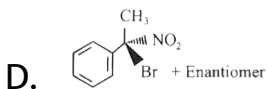
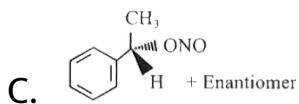
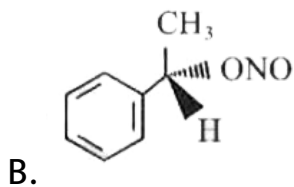
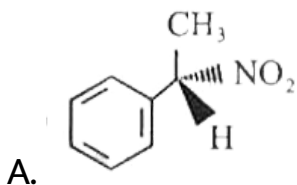


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11.

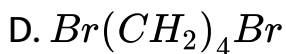
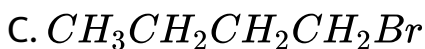
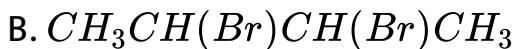


The main product is



**Answer: C**

12. An unknown alkyl halide (A) reacts with alcoholic KOH to produce a hydrocarbon ( $C_4H_8$ ) as the major product. Ozonolysis of the hydrocarbon affords one mole of propanaldehyde and one mole of formaldehyde. Suggest which organic compound among the following is the correct structure of the above alkyl halide (A) ?

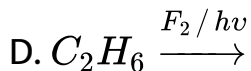
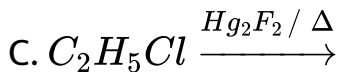
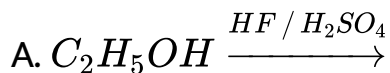


**Answer: C**



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13. The best method to prepare fluoroethane is

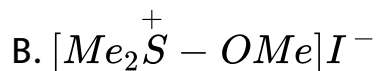
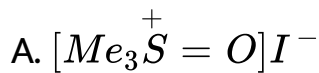


**Answer: C**



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14.  $CH_3I \xrightarrow{DMSO} [X]$ . The major product [X] is



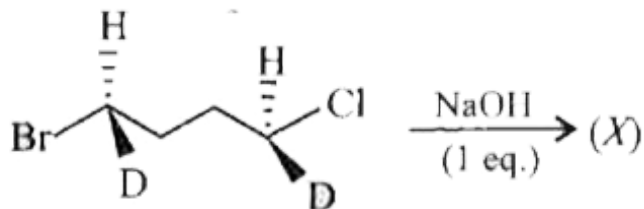
C. both (a) and (b)

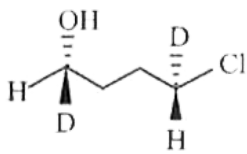
D. none of these.

**Answer: A**

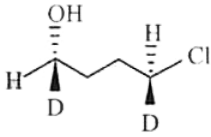
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15. What is the product X in the following reaction ?

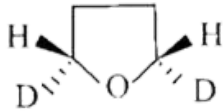




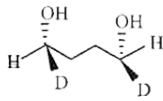
A.



B.



C.



D.

**Answer: B**

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**Wb Jee Workout Category 3 One Or More Than One Option  
Correct Type 2 Marks**

1. Select the compound from the following which can undergo  $S_N2$ , but cannot undergo ( or gives minor product), elimination on heating with  $CH_3O^-$ .

- A. 2-bromo-3-methylpentane
- B. 1-bromo-2,3-dimethylbutane
- C. 1-bromo-2,2-dimethylbutane
- D. 3-bromo-2-methylpentane.

**Answer: B::C**



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2.  $S_N2$  reactions are much faster in the solvents like



- A. dimethyl formamide
- B. dimethyl sulphoxide
- C. hexamethyl phosphoramidate
- D. alcohol-water mixture.

**Answer: A::B::C**

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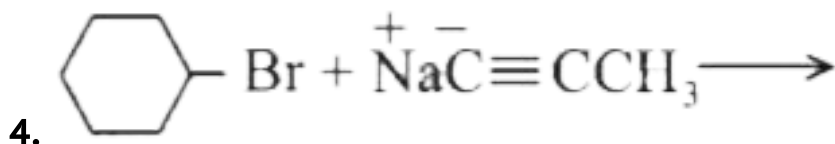
**3. Which of the following statements are correct ?**

- A. In general, for a nucleophilic reaction to be successful, the nucleophile must be significantly more stronger than the leaving group.

- B. The replacement of hydrogen atoms for alkyl groups hinders the approach of nucleophile in  $S_N2$ .
- C. A tertiary halide is most reactive in an  $S_N2$  reaction.
- D. Rearrangements are generally observed in  $S_N2$  mechanism.

Answer: A::B

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In this reaction the major products formed are

- A. propyne

B. cyclohexene

C. 3-cyclohexylpropyne

D. 2-cyclohexylpropane.

**Answer: A::B**



**View Text Solution**

5. The compounds used as refrigerant is are

A.  $CH_2F_2$

B.  $CCl_4$

C.  $C_2F_4$

D.  $CF_2Cl_2$

Answer: D

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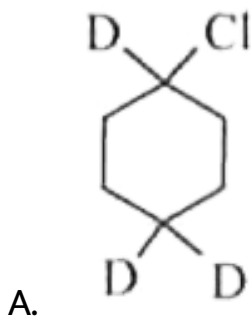
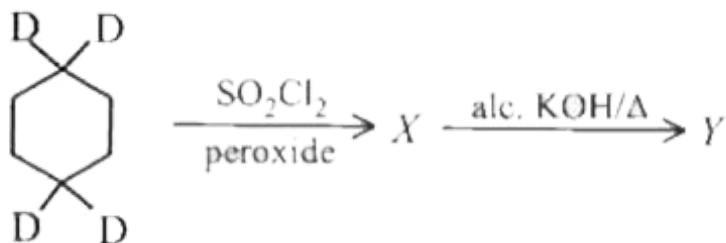
6. Which of the following is not correct ?

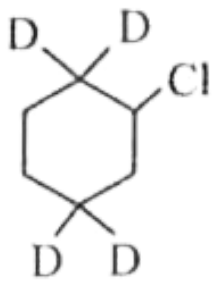
- A.  $S_N1$  reaction involves transition state and completed in polar aprotic solvents.
- B.  $S_N2$  reaction is stereoselective as well as stereospecific.
- C. Walden inversion occurs in  $S_N1$  reaction.
- D. Allylic and benzylic halides show low reactivity towards  $S_N1$  reaction.

Answer: A::C::D

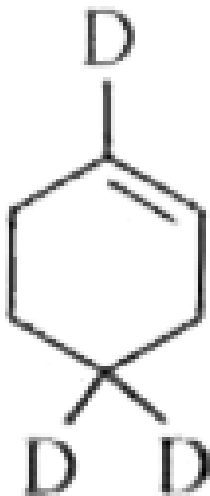
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7. Which observation (s) will be correct about the major products X and Y of the following reaction >

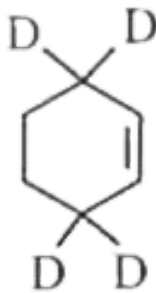




B.



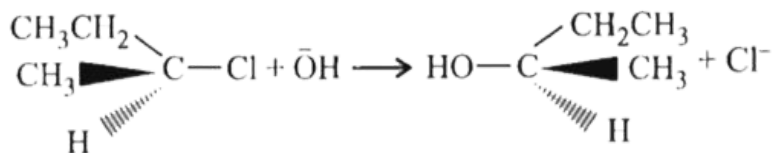
C.



D.

Answer: B::D

8. In the reaction given below :



Which of the following statements is/are incorrect ?

- A. The reaction proceeds via  $S_N2$  mechanism hence inversion of configuration takes place.
- B. The reaction proceeds via  $S_N1$  mechanism hence inversion of configuration takes place.
- C. The reaction proceeds via  $S_N2$  mechanism hence their is no change in the configuration.

D. The reaction proceeds via  $S_N1$  mechanism hence there is no change in the configuration.

**Answer: B::C::D**



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9. Alkyl halide can be obtained from alkane or alkene by reaction with

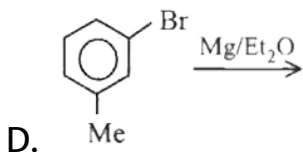
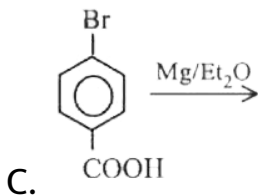
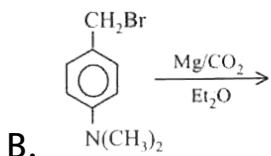
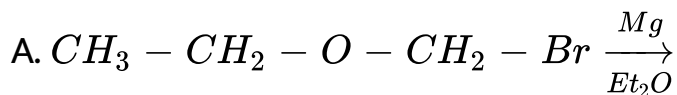
- A. HBr
- B. HCl
- C.  $PCl_5$
- D.  $Cl_2$



Answer: A::B::D

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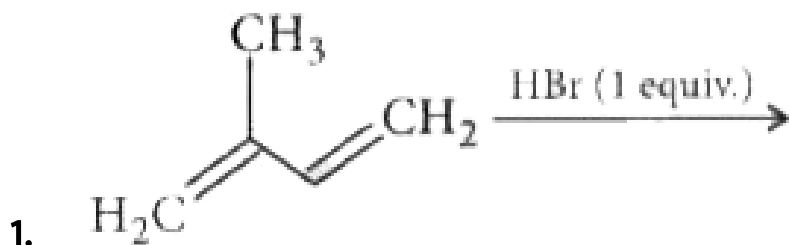
10. Which of the following compounds form a stable Grignard reagent ?



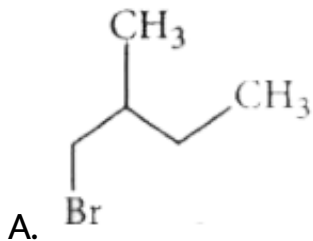
Answer: A::B::D

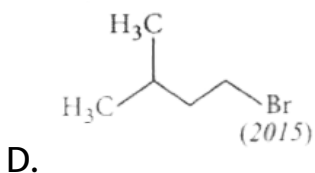
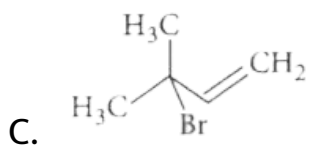
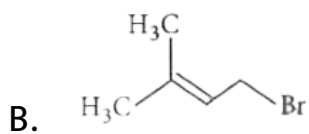
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Wb Jee Previous Years Questions Category 1 Single Option  
Correct Type 1 Mark



The major product of the above reaction is





**Answer: B**

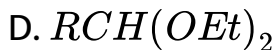
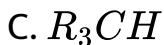
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2. In the following reaction:



The product 'P' is

A. RCHO

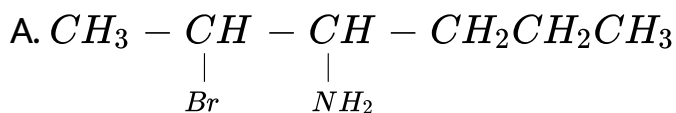
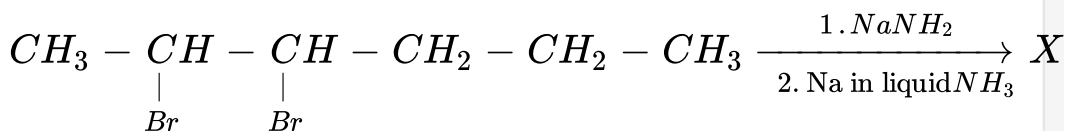


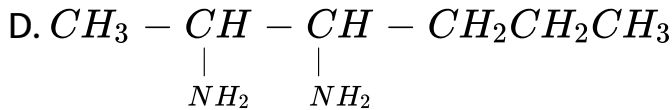
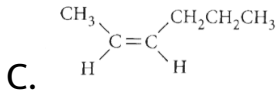
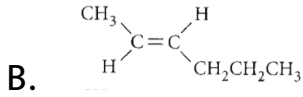
**Answer: A**

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**Wb Jee Previous Years Questions Category 2 Single Option  
Correct Type 2 Marks**

1. Identify X in the following sequence of reactions :





**Answer: B**

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2. The number of possible organobromine compounds which can be obtained in the allylic bromination of 1-butene with N-bromosuccinimide is

A. 1

B. 2

C. 3

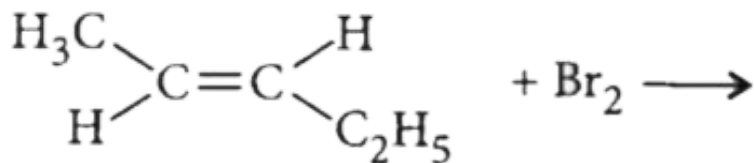
D. 4

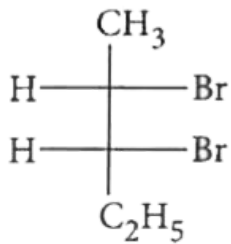
**Answer: D**

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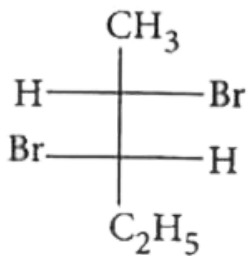
**Wb Jee Previous Years Questions Category 3 One Or More Than One Option Correct Type 2 Marks**

1. the major product(s) obtained in the following reaction is/are

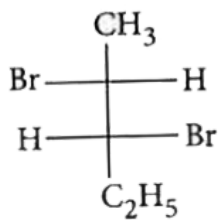




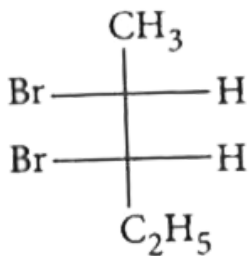
A.



B.



C.



D.

Answer: A::D



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