



CHEMISTRY

JEE MAIN AND ADVANCED

HALOALKANES AND HALOARENES

EXAMPLE

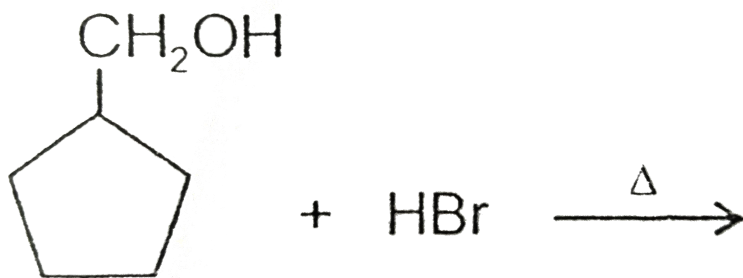
1. Draw all possible geometrical isomers of molecular formula



Watch Video Solution

2. Identify all the products formed in all the following reaction and

indicate the major product

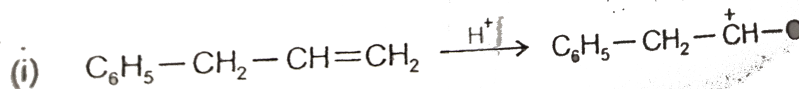
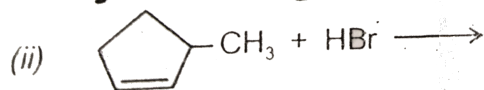
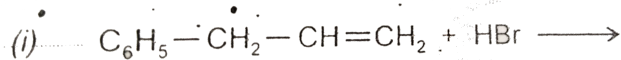


[▶ Watch Video Solution](#)

3. A hydrocarbon of molecular formula C_6H_{14} on monochlorination given two products Identify the structure of hydrocarbon.

[▶ Watch Video Solution](#)

4. What are the major products formed in the following reactions ?



 [Watch Video Solution](#)

5. Convert benzene to 1-bromo-3-ethylbenzene

 [Watch Video Solution](#)

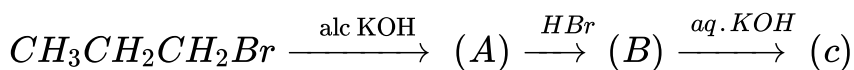
6. Synthesize m-dibromobenzene from benzene

 [Watch Video Solution](#)

7. What happens when optically active 3-bromo-3-methyl hexane is hydrolysed at room temperature ?

 [Watch Video Solution](#)

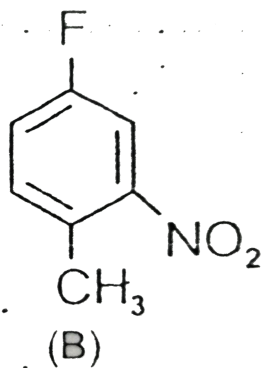
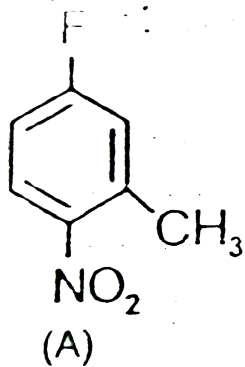
8. Identify the final product (C) formed in the following sequence of reactions



 [Watch Video Solution](#)

9. Which one of the following compounds readily reacts with NaOH

?



 [Watch Video Solution](#)

10. Convert chlorobenzene to 4- nitrophenol

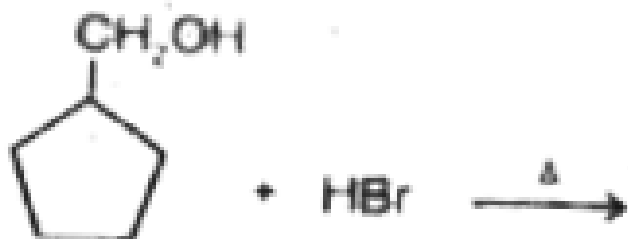
 [Watch Video Solution](#)

11. Draw all possible geometrical isomers of molecular formula



 [Watch Video Solution](#)

12. Identify all the products formed in the following reaction and indicate the major product.



[Watch Video Solution](#)

13. A hydrocarbon of molecular formula C_6H_{14} on monochlorination given two products Identify the structure of hydrocarbon.

[Watch Video Solution](#)

14. What are the major products formed in the following reactions

?



(ii)

[Watch Video Solution](#)

15. Convert benzene to 1-bromo-3-ethylbenzene

[Watch Video Solution](#)

16. Synthesize m- dibromobenzene from benzene

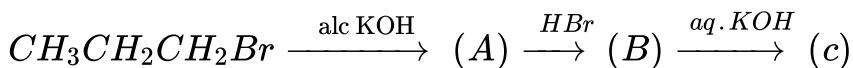
[Watch Video Solution](#)

17. What happens when optically active 3-bromo-3-methyl hexane is hydrolysed at room temperature ?



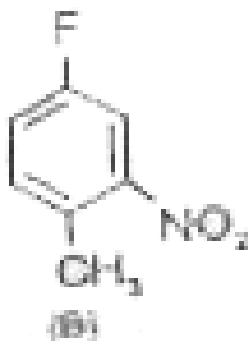
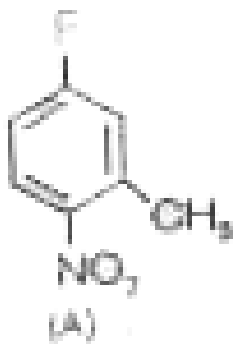
Watch Video Solution

18. Identify the final product (C) formed in the following sequence of reactions



Watch Video Solution

19. Which one of the following compounds readily reacts with NaOH?



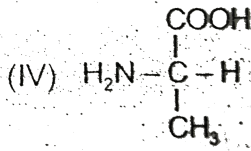
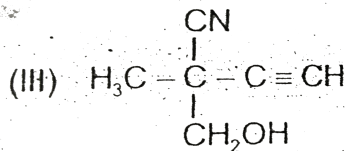
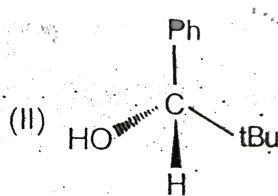
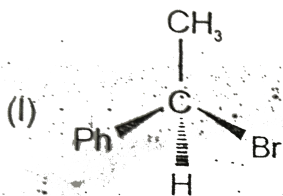
Watch Video Solution

20. Convert chlorobenzene to 4-nitrophenol

 Watch Video Solution

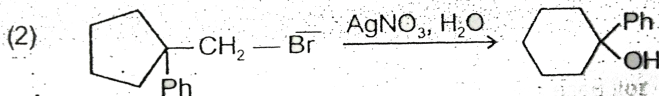
Illustration

1. Designate each chirality center as (R) or (S) in the given compounds



 Watch Video Solution

2. Give mechanisms for the following silver -promoted rearrangements :



 [Watch Video Solution](#)

3. What is the correct order of decreasing nucleophilicity in non-polar solvents: OH^- , NH_2^- , F^- , CH_3^-

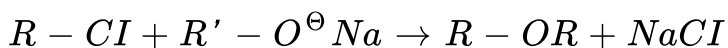
 [Watch Video Solution](#)

4. Optically active 2-iodo butane on treatment with NaI in acetone gives a product which does not show optical activity. Explain briefly.

 [Watch Video Solution](#)

 Watch Video Solution

5. Explain the fact that a small amount of NaI catalyzes the general reaction



With I^{-} ion the overall reaction occurs in two steps each of which is faster than the uncatalyzed reaction .

 Watch Video Solution

Assignment (Section - A) (Competition Level Question)

1. Which of the following is a secondary alkyl halide ?

A. Isobutyl chloride

B. Isopentyl chloride

C. Neopentyl Chloride

D. Isopropyl chloride

Answer: 4

 [Watch Video Solution](#)

2. The IUPAC name of the compound

$CH_3 - CH = CH - CH_2Br$ is

A. 4-Bromobut -2- ene

B. 1-Bromobut -2- ene

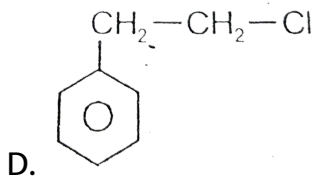
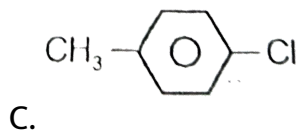
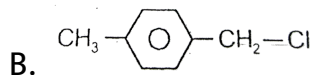
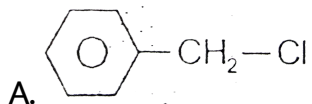
C. 3-Bromobut -2- ene

D. Allyl bromide

Answer: 2

 [Watch Video Solution](#)

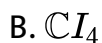
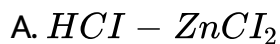
3. Which of the following may be classified as an aryl halide ?



Answer: 3

 Watch Video Solution

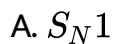
4. Which one of the following reagents will not convert ethyl alcohol into ethyl chloride ?



Answer: 2

 Watch Video Solution

5. The reaction , $CH_3Br + OH^- \rightarrow CH_3OH + Br^-$ obeys the mechanism



B. S_N2

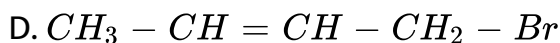
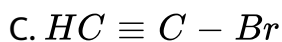
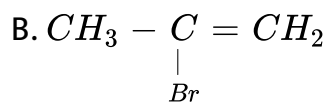
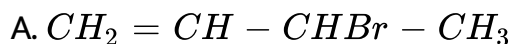
C. S_E1

D. S_E2

Answer: 2

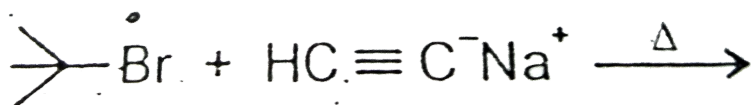
 [Watch Video Solution](#)

6. Which of the following belongs to the class of vinyl halides ?

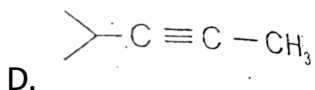
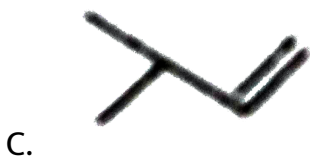
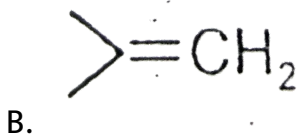
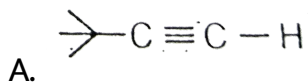


Answer: 2

7. In the following reaction



The substrate is transformed into



Answer: 2

8. Which of the following acts as a poisonous gas ?



C. Benzene



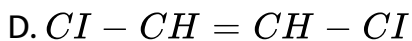
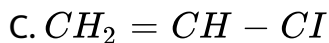
Answer: 1



Watch Video Solution

9. Which of the following is used as fire extinguisher under the name pyrene ?



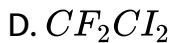


Answer: 2



Watch Video Solution

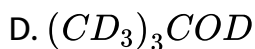
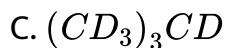
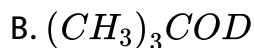
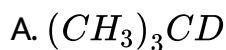
10. Which of the following is known as freon which is used as a refrigerant ? .



Answer: 4

 [Watch Video Solution](#)

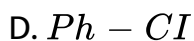
11. $(CH_3)_3C - MgCl$ on reaction with D_2O produces



Answer: 1

 [Watch Video Solution](#)

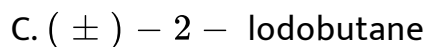
12. Which of the following is known as freon 12 ?



Answer: 2

 [Watch Video Solution](#)

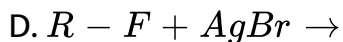
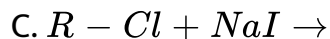
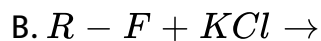
13. (*R*) -2-Iodobutane is treated with NaI in acetone and allowed to stand for a long time. The product eventually formed is .



Answer: 2

 [Watch Video Solution](#)

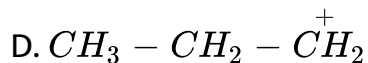
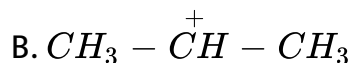
14. Which of the following halogen exchange reaction will occur in acetone ?



Answer: C

 [Watch Video Solution](#)

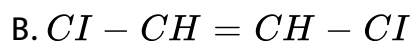
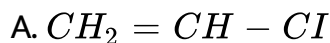
15. The intermediate during the addition of HCl to propene in the presence of peroxide is :

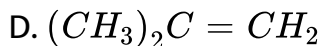
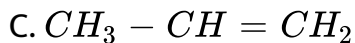


Answer: 2

 Watch Video Solution

16. The addition of HBr is the easiest with





Answer: 4

 [Watch Video Solution](#)

17. The reaction of propene with HOCl proceeds via the addition of
:

A. H^+ in the first step

B. Cl^+ in the first step

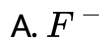
C. OH^- in the first step

D. Either H^+ or OH^- in first step

Answer: 2

 [Watch Video Solution](#)

18. which is more reactive nucleophile in polar protic solvent ?



Answer: 4



Watch Video Solution

19. Which is more reactive nucleophile in polar aprotic solvent ?

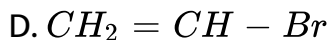
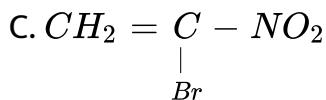
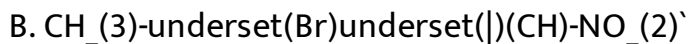
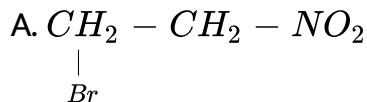




Answer: 1

 Watch Video Solution

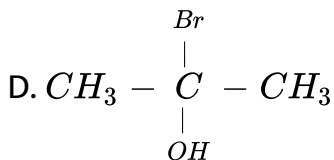
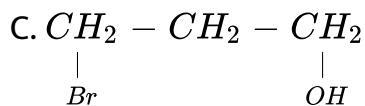
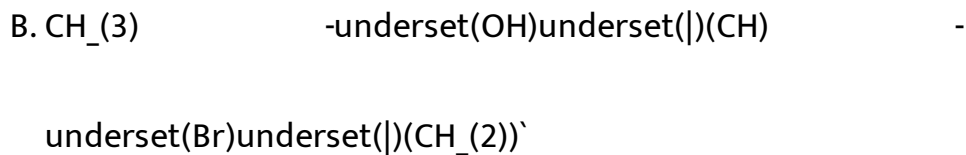
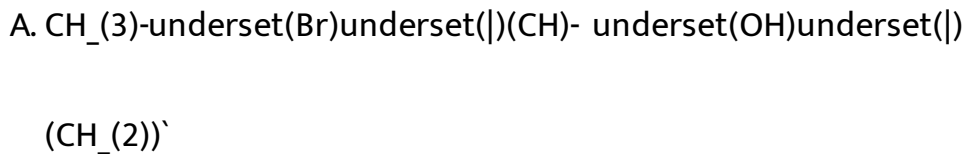
20. $CH_2 = CH - NO_2 + HBr \rightarrow P$, The major product P is



Answer: 1

 Watch Video Solution

21. $CH_3 - CH = CH_2 + HOBr \rightarrow P$, The major product P is

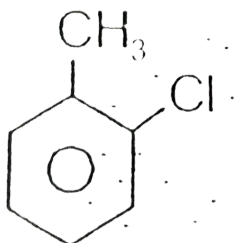
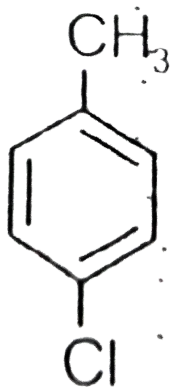
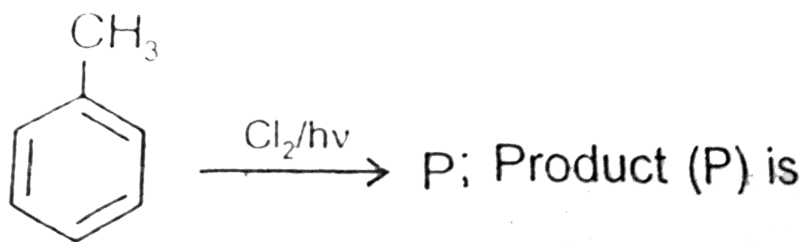


Answer: 2

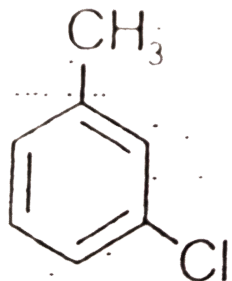
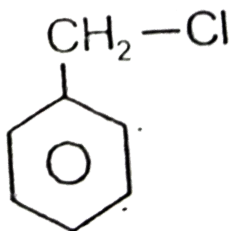


Watch Video Solution

22. Complete the following reaction

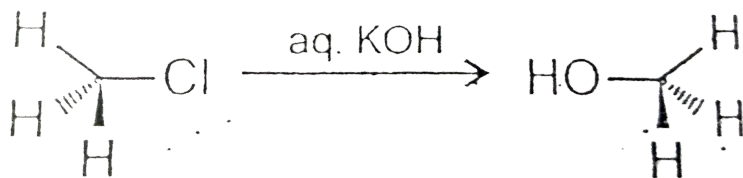


B.



Answer: 3

 Watch Video Solution



23.

The reaction goes through

A. S_N1

B. S_N2

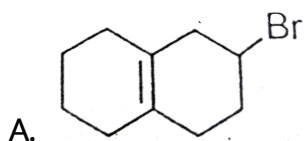
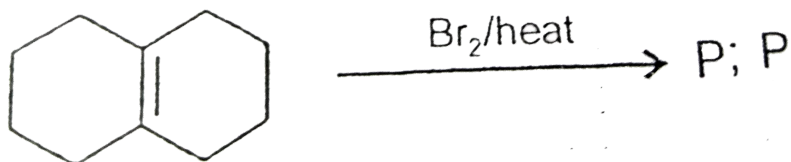
C. E_2

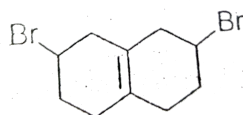
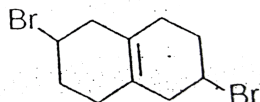
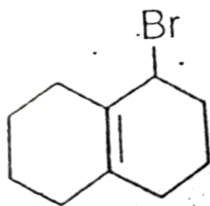
D. E_1

Answer: 2

 Watch Video Solution

24. Complete the following reaction





Answer: 2

 [Watch Video Solution](#)

25. Which of the following solvent is suitable for S_N1 reaction ?

A. Non- polar

B. Polar protic

C. Polar aprotic

D. all of these

Answer: 2

 [Watch Video Solution](#)

26. The order of E_2 elimination for alkyl halide is

A. $1^\circ > 2^\circ > 3^\circ$

B. $3^\circ > 2^\circ > 1^\circ$

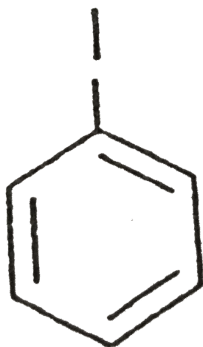
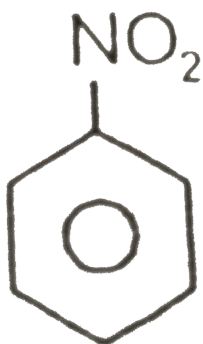
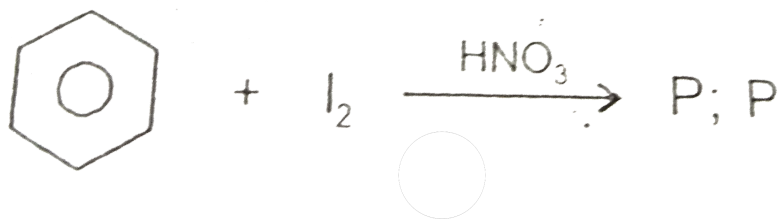
C. $2^\circ > 3^\circ > 1^\circ$

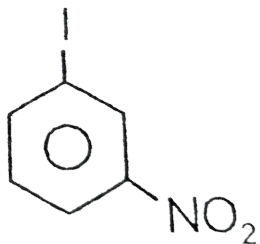
D. $3^\circ > 1^\circ > 2^\circ$

Answer: 1

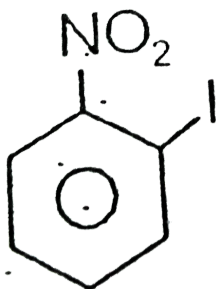
 [Watch Video Solution](#)

27. Complete the following reaction





C.

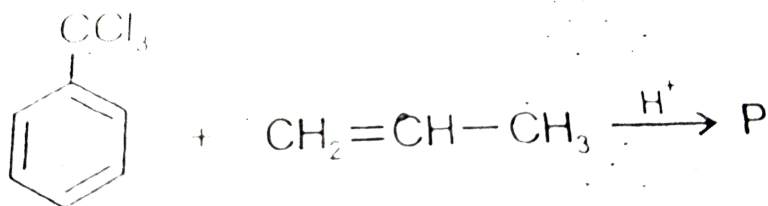


D.

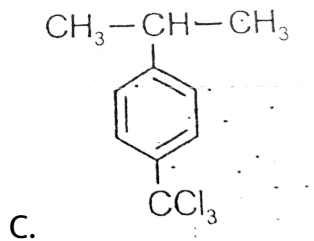
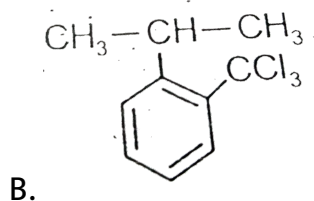
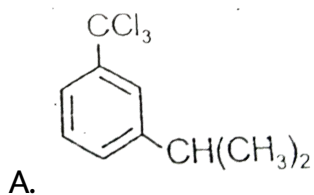
Answer: 2

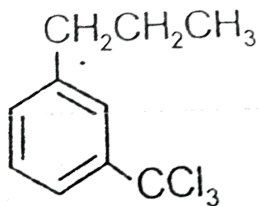
 [Watch Video Solution](#)

28. Complete the following reaction



Product P is

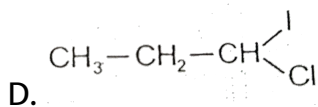
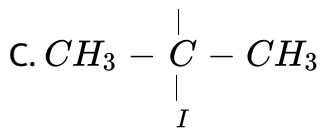
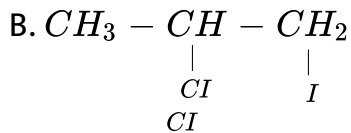
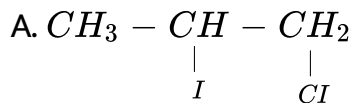
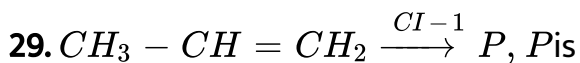




D.

Answer: 1

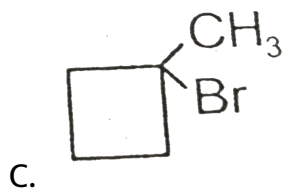
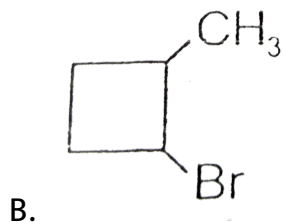
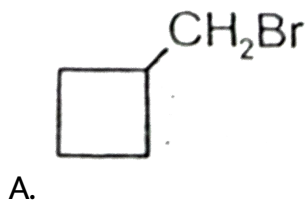
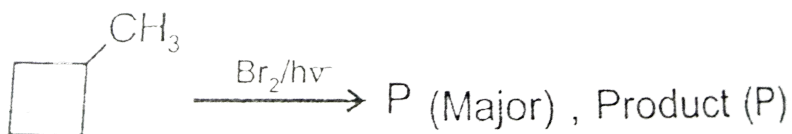
 Watch Video Solution

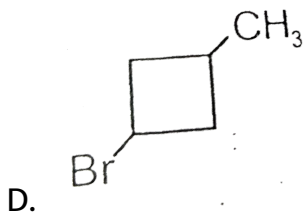


Answer: 2

 Watch Video Solution

30. Complete the following reaction

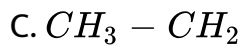
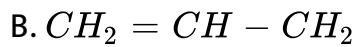




Answer: 3

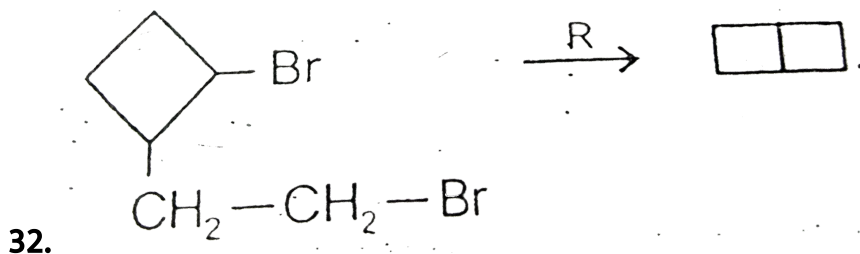
 Watch Video Solution

31. Which is most stable radical ?



Answer: 2

 Watch Video Solution



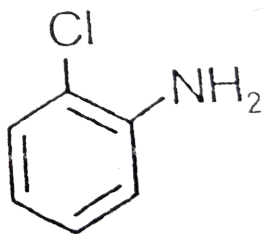
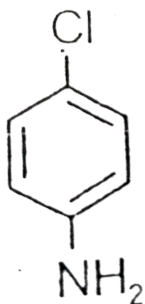
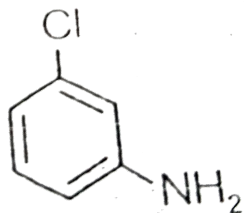
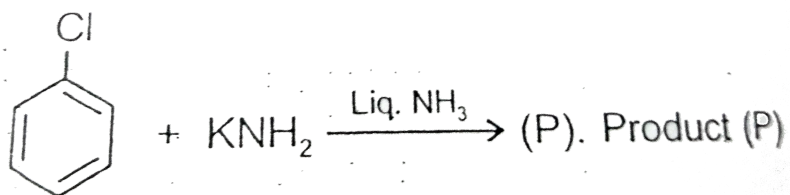
The reagent R is

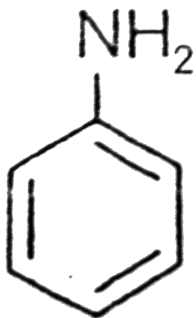
- A. NH_3
- B. H_2O
- C. KCN
- D. Na / ether

Answer: 4

 Watch Video Solution

33. Complete the following reaction

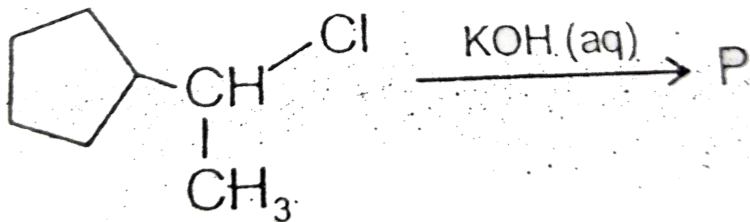




D.

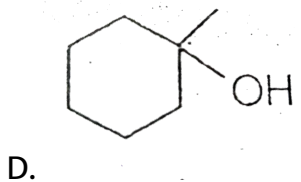
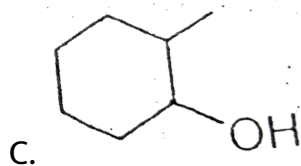
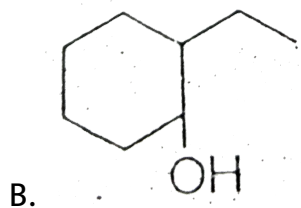
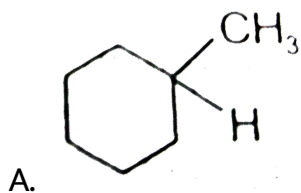
Answer: 4

 Watch Video Solution



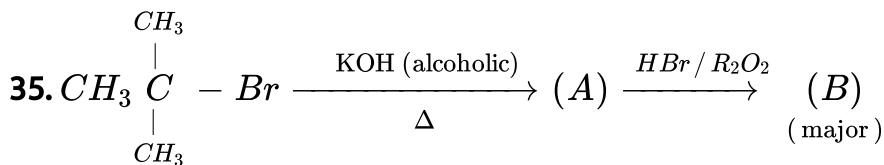
34.

Product P (major) is

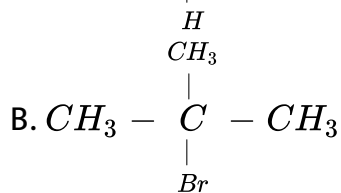
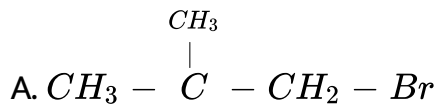


Answer: 4

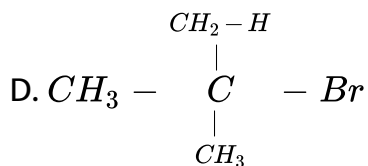
 Watch Video Solution



(B) is

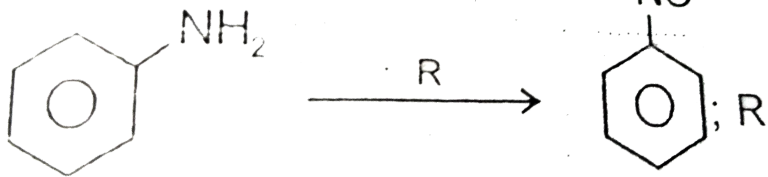


(C) -OH`



Answer: 1

 Watch Video Solution



A. N_2

B. $CHCl_3 / KOH$ (alcoholic)

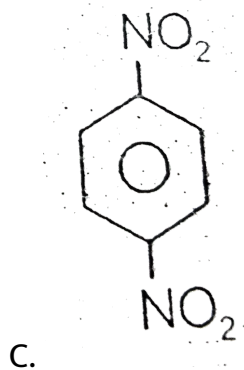
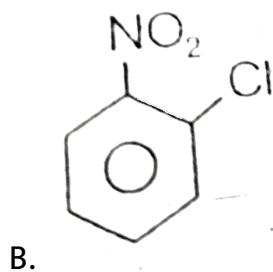
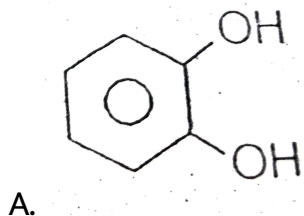
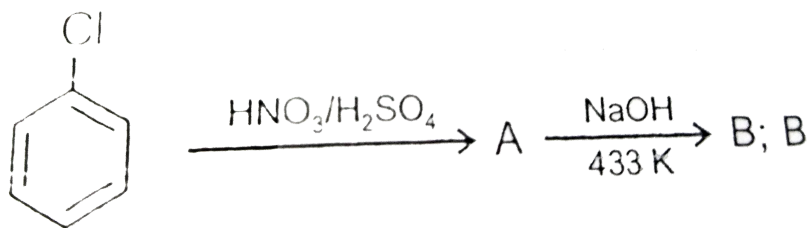
C. NH_3

D. KCN

Answer: 2

 Watch Video Solution

37. Complete the following reaction



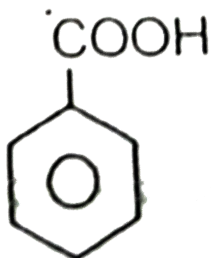
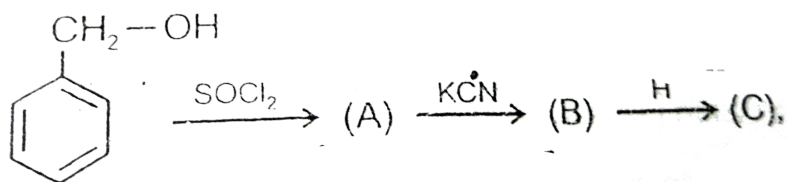


D.

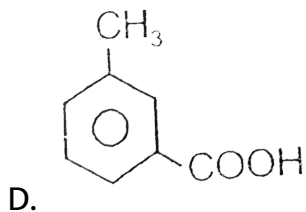
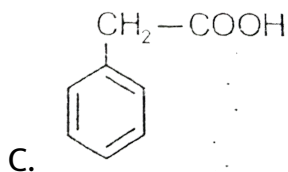
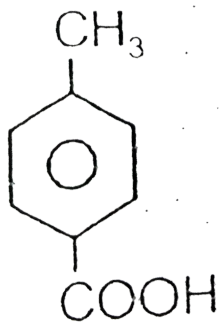
Answer: 4

 Watch Video Solution

38. Complete the following reaction



A.



Answer: 3

 [Watch Video Solution](#)

39. Which of the following is correct for

$\text{CH}_3\text{-CH=CH}_2$ $\xrightarrow[\text{Peroxide}]{\text{HBr}}$?

- A. Electrophilic substitution
- B. Anti- Markovnikov's addition
- C. Nucleophilic substitution
- D. Markovnikov's addition

Answer: 2

 [Watch Video Solution](#)

40. $C_6H_5CH_3 \xrightarrow{Br_2 / FeBr_3}$ the reaction is called

- A. Nucleophilic substitution
- B. Free radical addition
- C. Electrophilic substitution
- D. Free radical substitution

Answer: 3

 [Watch Video Solution](#)

41. $(p - ClC_6H_4)_2CHCCl_3$ is used as a / an

- A. Antiseptic for wounds
- B. Insecticide
- C. Pyrene
- D. Refrigerant

Answer: 2

 [Watch Video Solution](#)

42. CHI_3 is used as a / an

A. Antiseptic for wounds

B. Insecticide

C. Pyrene

D. Refrigerant

Answer: 1



Watch Video Solution

43. $C_6H_5N_2Cl \xrightarrow{KI}$ This reaction is named as

A. Sandmeyer

B. Swarts

C. Wurtz -Fittig

D. Finkelstein

Answer: 1

 [Watch Video Solution](#)

44. For S_N1 mechanism which of the following is correct ?

- A. Inversion (100 %)
- B. Formation of carbocation
- C. Non-polar solvent
- D. Elimination

Answer: 2

 [Watch Video Solution](#)

45. Which of the following is not an ambident nucleophile?



Answer: 4



Watch Video Solution

46. CF_2Cl_2 is used as an / a

A. Antiseptic

B. Insecticide

C. Analgesic

D. Refrigerant

Answer: 4

 [Watch Video Solution](#)

47. As S_N2 reaction at an asymmetric carbon of a compound always gives:

- A. An enantiomer of the substrate
- B. A product with opposite optical rotation
- C. A mixture of diastereomers
- D. A product with 100% inversion

Answer: 4

 [Watch Video Solution](#)

48. 2- Bromopentane is heated with $EtO^- Na^+$ in ethanol. The major product obtained is

- A. 2-Ethoxypentane
- B. Pent -1-ene
- C. Isobutane
- D. Pent-2-ene

Answer: 4



[Watch Video Solution](#)

49. Out of the following the alkene that exhibits optical isomerism is

- A. 3-Methylpent - 1- ene

B. 2-Methylpent -2- ene

C. 3- Methylpent -2- ene

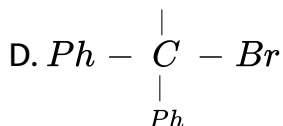
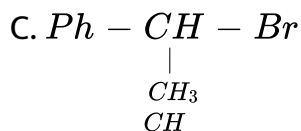
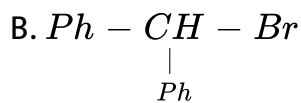
D. 4-methylpent -1-en

Answer: 1



Watch Video Solution

50. Which one is the most reactive towards S_N1 reaction ?



Answer: 4

 [Watch Video Solution](#)

Assignment (Section - B) (Objective Type Question(One option is correct))

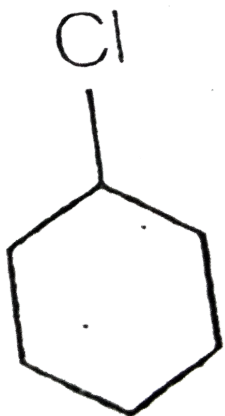
1. The compound $C_2FClBrI$ has

- A. 4 isomers
- B. 2 optical isomers
- C. 2 geometrical isomers
- D. 6 isomers

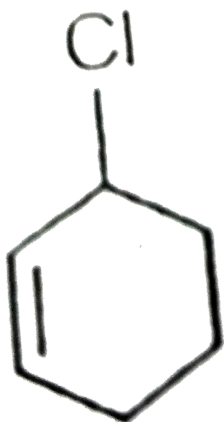
Answer: 4

 [Watch Video Solution](#)

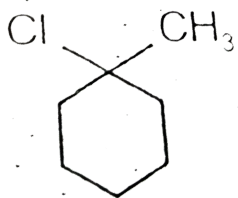
2. Which among the following compounds will be most reactive for S_N1 reaction ?



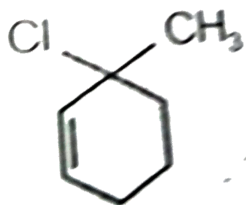
A.



B.



C.

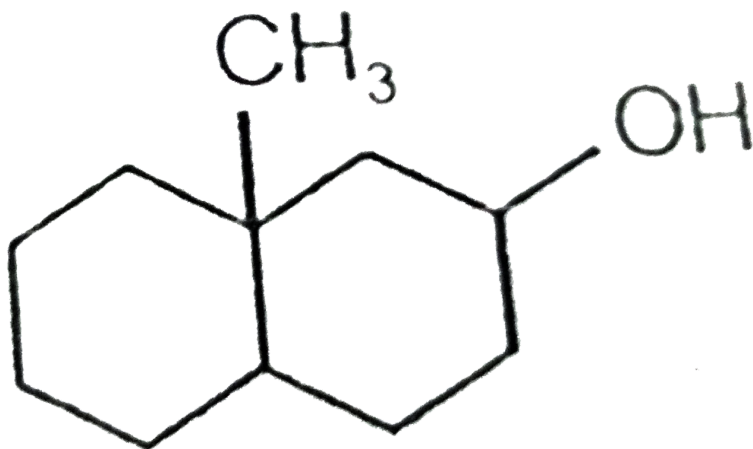


D.

Answer: 4

 [Watch Video Solution](#)

3. How many chiral carbons are present in following structure ?



A. 1

B. 2

C. 3

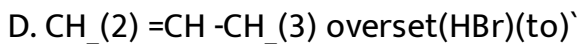
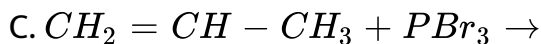
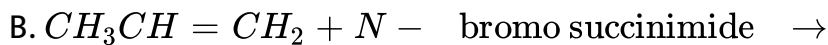
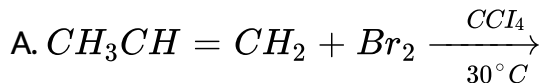
D. 4

Answer: 3



[Watch Video Solution](#)

4. Which of the following can be used to prepare 3-bromo propene ?



Answer: 2



Watch Video Solution

5. In the S_N2 reaction of cis -3- methylcyclo pentyl bromide with alkali the product formed is

A. A cis alcohol

B. A trans alcohol

C. An equimolecular mixture of cis and trans alcohol

D. There is no reaction

Answer: 2



Watch Video Solution

6. Reaction of *t* – *butyl* bromide with sodium methoxide produces

A. Isobutane

B. Tertiary butyl methyl ether

C. Isobutylene

D. Butene

Answer: 3



Watch Video Solution

7. Arrange the following in the increasing order of ease of nucleophilic substitution reaction

Chlorobenzene (I) 2,4,6 trinitrochlorobenzene (II) 2,4 dinitrochlorobenzene (III) and 4- nitrochlorobenzene (IV)

A. $I < IV < III < II$

B. $I < III < IV < II$

C. $II < III < IV < I$

D. $IV < III < II < I$

Answer: 1

8. How many structural isomers are possible for the molecular formula $C_5H_{11}Br$?

A. 5

B. 6

C. 7

D. 8

Answer: 4



Watch Video Solution

9. Which one of the following compounds will give in the presence of peroxide a product different from that obtained in the absence peroxide ?

A. 1-butene HCl

B. 1-butene HBr

C. 2-butene HCl

D. 2-butene HBr

Answer: 2



Watch Video Solution

10. Which of the following compounds yields only one product on monobromination ?

A. Neopentane

B. Toluene

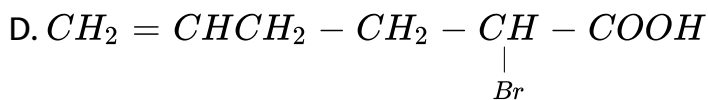
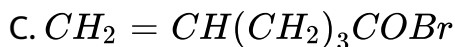
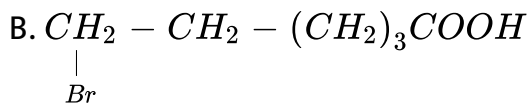
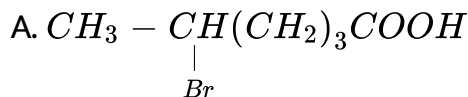
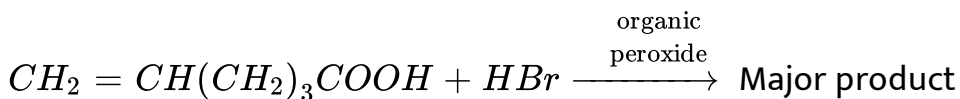
C. Phenol

D. Aniline

Answer: 1

 Watch Video Solution

11. The principle organic compound formed in the reaction is



Answer: 2

 Watch Video Solution

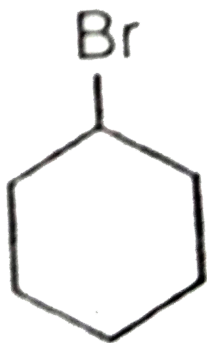
12. The reactivity order of alkyl halide is $3^\circ > 2^\circ > 1^\circ$ in

- A. Both S_N1 and S_N2
- B. Both S_N2 and E_2
- C. Both E_2 and S_N2
- D. Both S_N1 and E_2

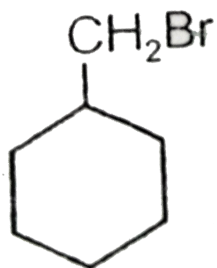
Answer: 4

 [Watch Video Solution](#)

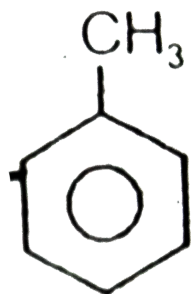
13. The product obtained by reduction of benzyl bromide with $LiAlH_4$ is



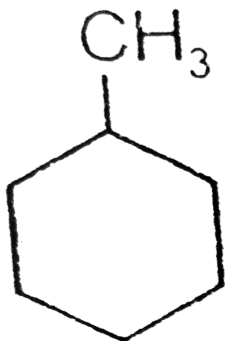
A.



B.



C.



D.

Answer: 3

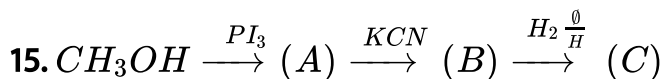
 [Watch Video Solution](#)

14. Which of the following statement is incorrect ?

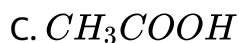
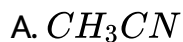
- A. An S_N1 reaction proceeds with inversion of configuration
- B. An S_N2 reaction proceeds with stereochemical inversion
- C. An S_N2 reaction follows second order kinetics
- D. E_2 reactions are generally stereoselective

Answer: 1

 Watch Video Solution



The compound (C) is



Answer: 3

 Watch Video Solution

16. The reaction



is reversible . For the completion of the reaction is used.

A. Anhydrous ZnCl_2

B. Conc. H_2SO_4

C. CaCl_2

D. Excess of water

Answer: 1

 [Watch Video Solution](#)

17. 3-methyl-2-pentene on reaction with HOCl gives

A. 3-chloro-3-methylpentanol

B. 2,3- dichloro-3- methyl pentane

C. 2-chloro-3- methyl pentanol -3

D. 2,3 dimethyl butanol-2

Answer: 3



Watch Video Solution

18. Among the three possible isomers of dibromo benzenes the highest melting point is possessed by

A. o- dibromobenzene

B. p-dibromobenzene

C. m-dibromobenzene

D. All have same melting point

Answer: 2

 [Watch Video Solution](#)

19. Benzal chloride on hydrolysis gives

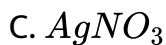
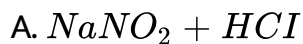
- A. Benzyl alcohol
- B. Benzoic acid
- C. Benzaldehyde
- D. Benzo tri alcohol

Answer: 3

 [Watch Video Solution](#)

20. For the reaction $R - Br \rightarrow R - O - N = O$

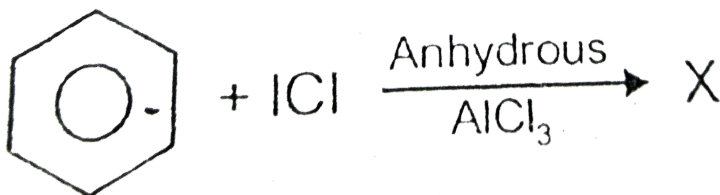
the suitable reagent is

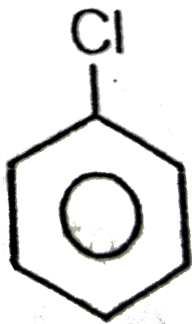


Answer: 4

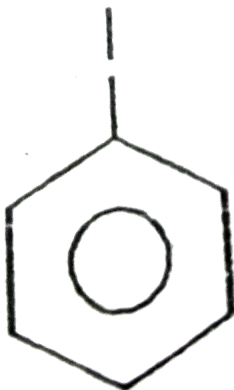
 Watch Video Solution

21. Compound X in the reaction is

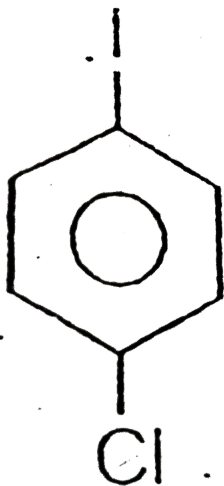




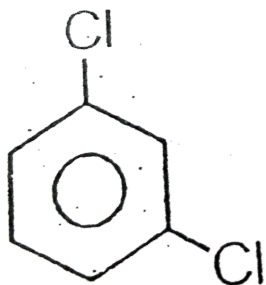
A.



B.



C.

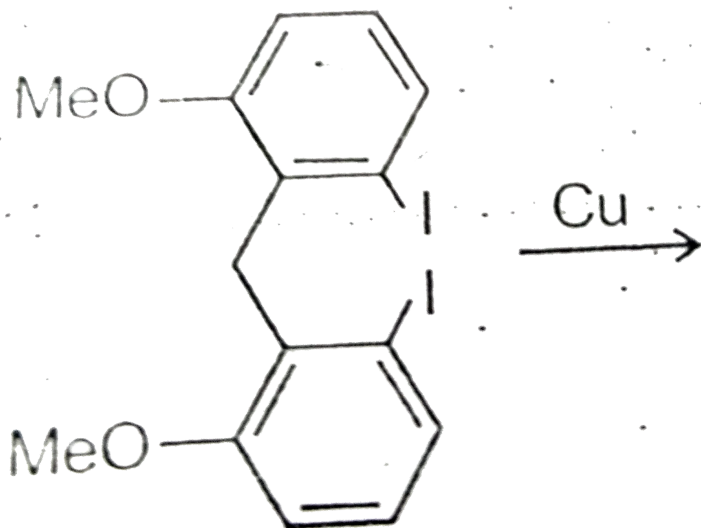


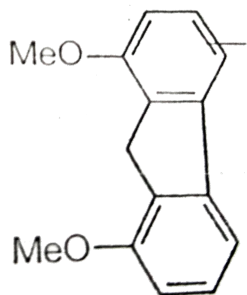
D.

Answer: 2

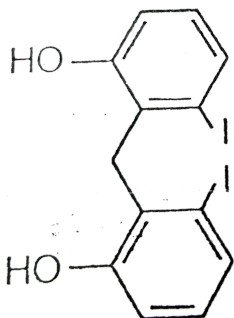
 Watch Video Solution

22. What would be the major product of the given reaction ?

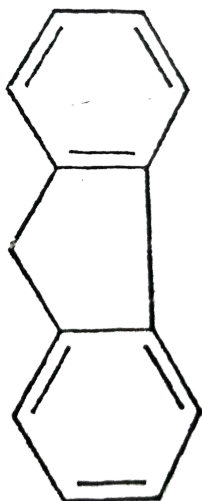




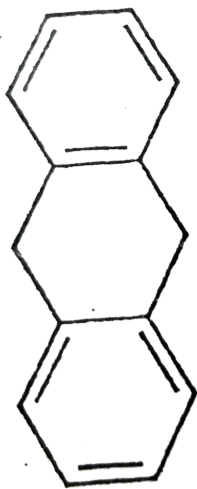
A.



B.



C.

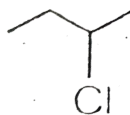


D.

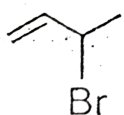
Answer: 1

 Watch Video Solution

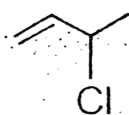
23. Arrange the given alkylhalides in the increasing reactivity towards Nucleophilic substitution reactions



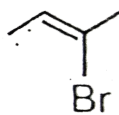
(A)



(B)

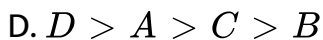
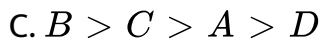
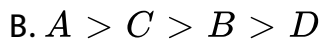


(C)



(D)

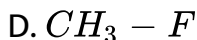
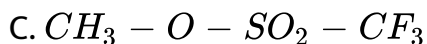
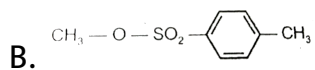
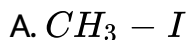
A. $A > B > D > C$



Answer: 3

 Watch Video Solution

24. Which of the following substrate is most reactive towards methoxide ion ($Me - \overset{\ominus}{O}$)?



Answer: 3

 [Watch Video Solution](#)

25. Each of the following reaction is given by tertiary butylbromide except

A. S_N1

B. S_N2

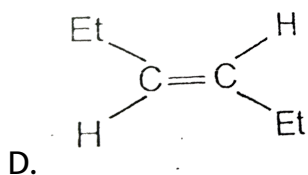
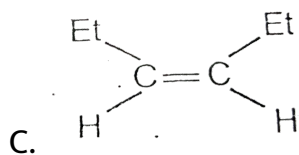
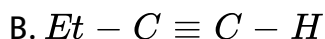
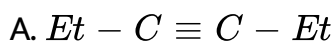
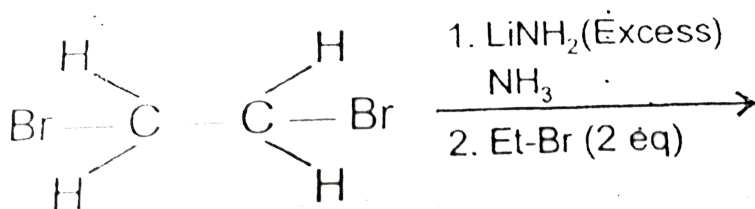
C. E_1

D. E_2

Answer: 2

 [Watch Video Solution](#)

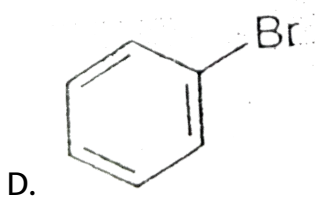
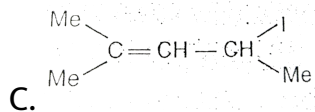
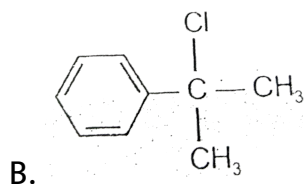
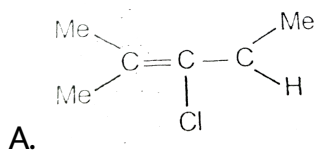
26. On the basis of the given reaction sequence find out the final product ?



Answer: 4

 Watch Video Solution

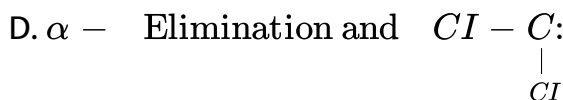
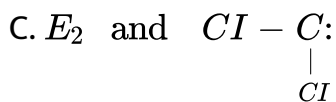
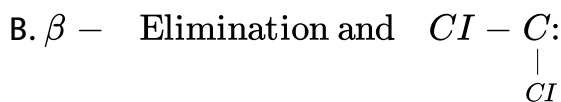
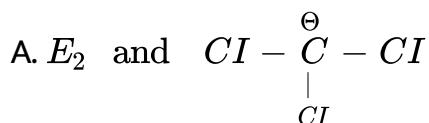
27. Which of the following compound will give yellow precipitate on shaking with aqueous solution of NaOH followed by the addition of $AgNO_3$ solution ?



Answer: 3

 Watch Video Solution

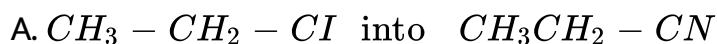
28. When chloroform reacts with NaOH an important reactive intermediate is formed . Type of reaction involved and formed intermediates are respectively .



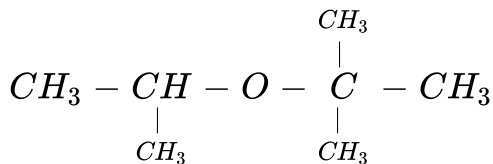
Answer: 4

 Watch Video Solution

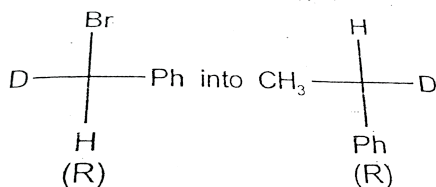
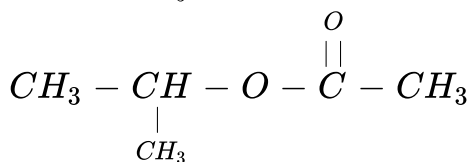
29. Through S_N2 reaction we cannot convert



B. $CH_3 - CH - Br$ into



C. $CH_3 - CH - Br$ into

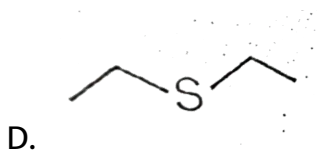
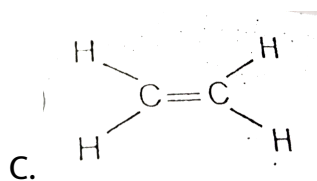
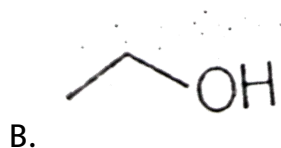


Answer: 2

 Watch Video Solution

30. Suppose that CH_3CH_2I is added to an ethanol solution containing an excess of $EtONa$, $EtSNa$ and $NaOH$ in equimolar

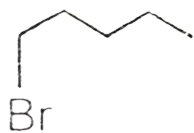
amounts . What is the major product that will be isolated from the reaction ?



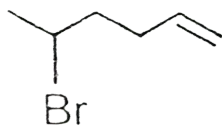
Answer: 4

 Watch Video Solution

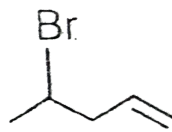
31. Rank the following compounds in order of increasing E_2 reaction rate with alcoholic KOH



(A)



(B)



(C)

A. $A < C < B$

B. $C < B < A$

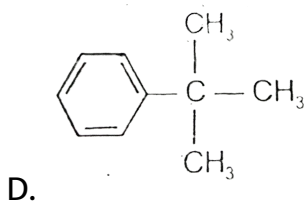
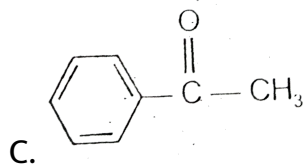
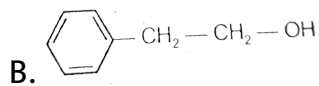
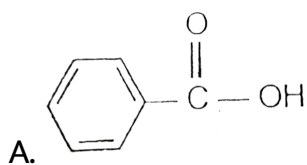
C. $A < B < C$

D. $B < A < C$

Answer: 3

 [Watch Video Solution](#)

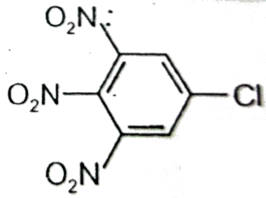
32. PhMgBr (Grignard reagent) cannot be used to prepare the compound ?



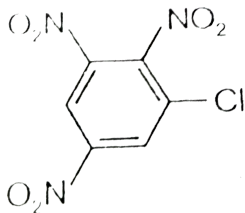
Answer: 4

 [Watch Video Solution](#)

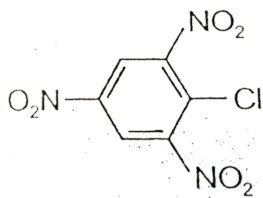
33. Which chloroderivative of nitrobenzene among the following would undergo hydrolysis most readily with aqueous NaOH?



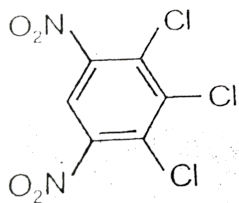
A.



B.



C.



D.

Answer: 3

 [Watch Video Solution](#)

34. R-(-)-2- Bromooctane on treatment with aqueous KOH mainly gives 2- octanol that is

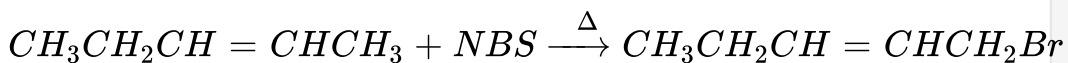
- A. Optically active with R configuration
- B. Optically active with S configuration
- C. A racemic mixture
- D. A meso compound

Answer: 2



Watch Video Solution

35. A chemist plans to prepare 1- bromo-2- pentene by the following reaction



This reaction is not likely to work because

A. There will be no reaction

B. $CH_3CH_2CH = CHCH_2$ will also form



C. $CH_3CH_2CH - CH - CH_3$ will form



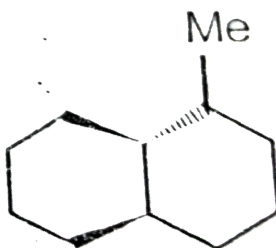
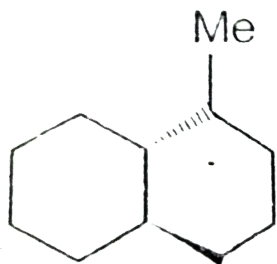
D. $BrCH_2CH_2CH = CH - CH_3$ will form

Answer: 2



Watch Video Solution

36. The two compounds shown in the figure below are



A. Enantiomers

B. Diastereomers

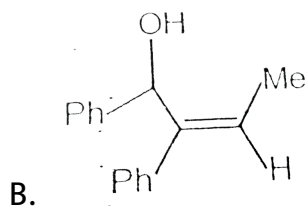
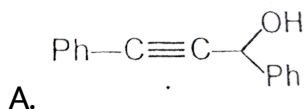
C. Epimers

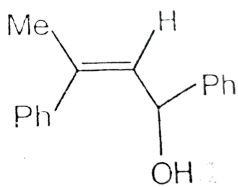
D. Regioisomers

Answer: 2

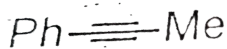
 [Watch Video Solution](#)

37. The reaction of phenylacetylene with one equivalent of methyl magnesium bromide followed by reaction with benzaldehyde provides





C.



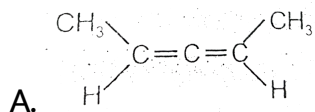
D.

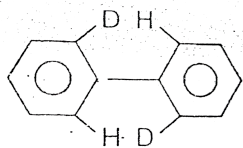
Answer: 2

 Watch Video Solution

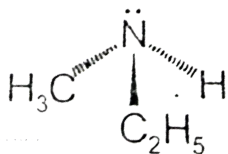
Assignment (Section - C) (Objective Type Question(More than one options are correct))

1. Which of the following cannot be resolved into enantiomers ?

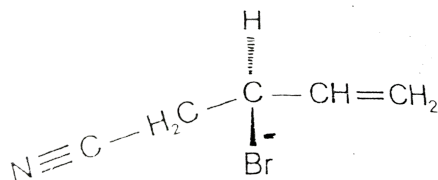




B.



C.

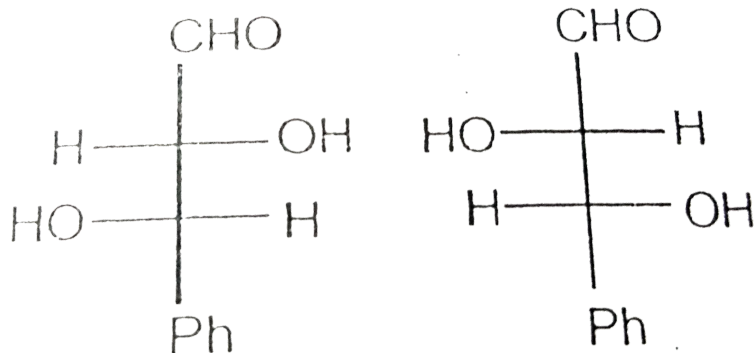


D.

Answer: (2,3)

 Watch Video Solution

2. Consider the following pair of compound



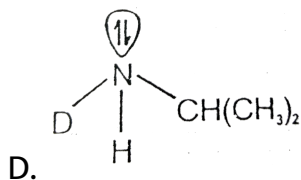
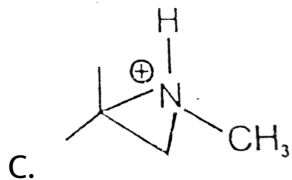
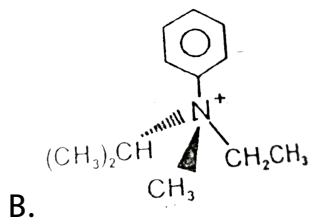
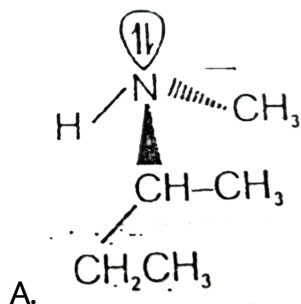
which of the following statement is correct

- A. Both are enantiomers
- B. Both are in threo form
- C. Both are diastereomers
- D. Both are in erythro form

Answer: (1,2)

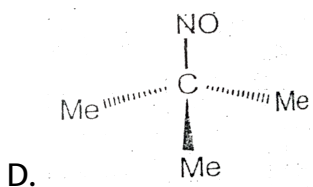
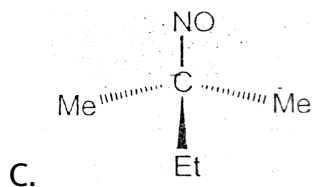
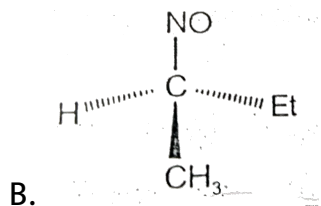
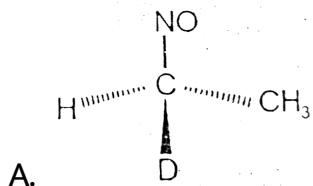
 [Watch Video Solution](#)

3. Which of the following compound can be resolved into enantiomers ?



Answer: (2,3)

4. Which of the following nitroso compound are in dynamic equilibrium with their tautomers ?

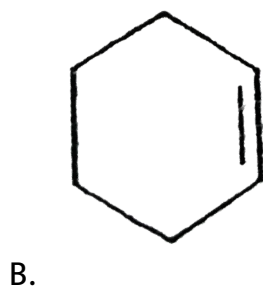
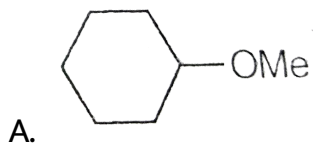
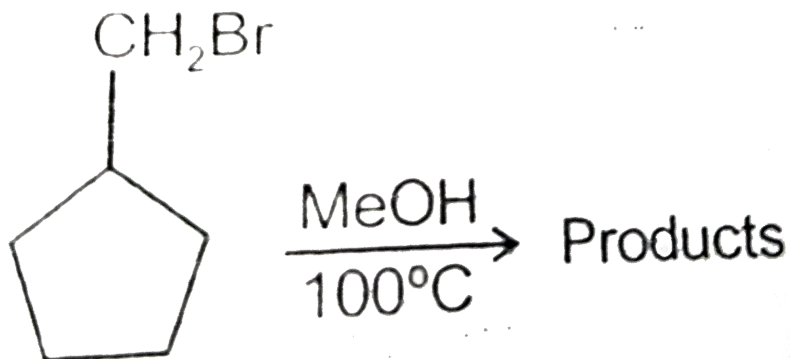


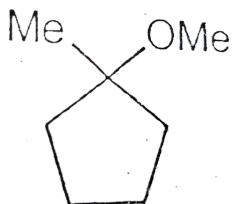
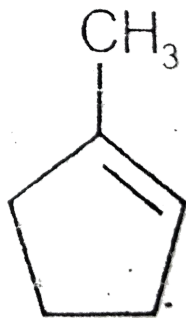
Answer: -1.2



Watch Video Solution

5. Which of the following products are expected from the solvolysis of bromomethyl cyclopentane ?

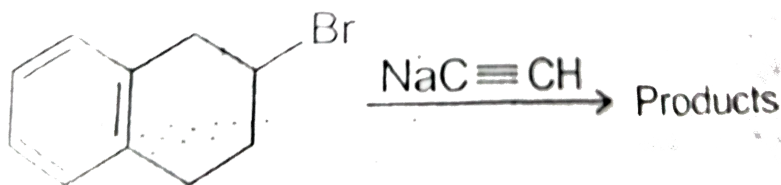


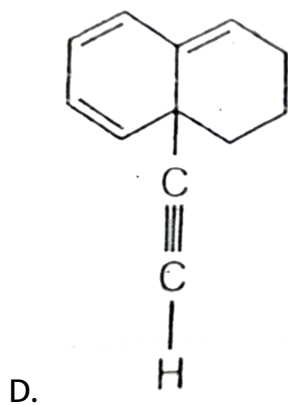
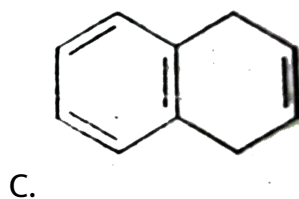
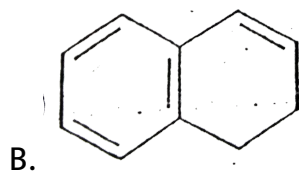
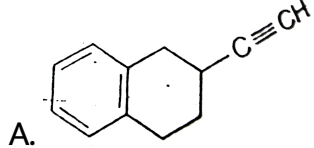


Answer: (1,2,3,4)

 Watch Video Solution

6. What would be the probable products of the given reaction ?

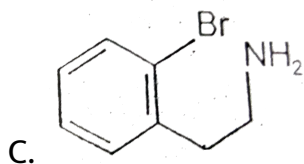
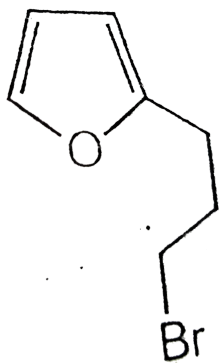
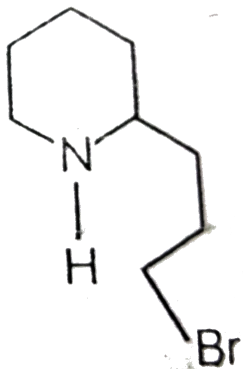


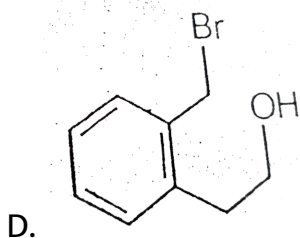


Answer: (1,2,3)

 Watch Video Solution

7. Under the presence of alkali which of the following substrate will give intramolecular S_N2 reaction ?





Answer: (1,4)

 [Watch Video Solution](#)

8. Which of the following reactions follows concerted mechanism ?

A. S_N1

B. S_N2

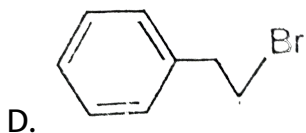
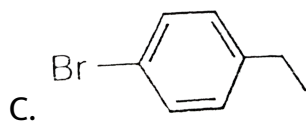
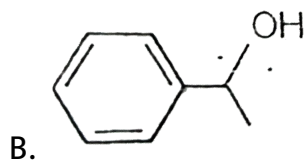
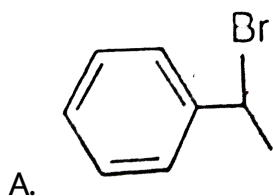
C. E_1

D. E_2

Answer: (2,4)

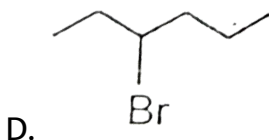
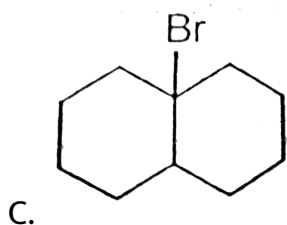
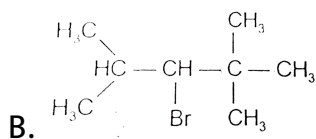
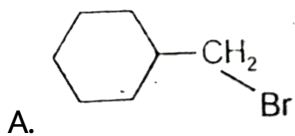
 [Watch Video Solution](#)

9. Dehydrohalogenation and acidcatalyzed dehydration reactions are frequently used to prepare alkenes from corresponding alkylhalides and alcohols . Out of the given substrates which can be used to prepare styrene ?



Answer: (1,2,4)

10. Which of the following alkylhalides will give one alkene (more than 90%) on dehydrohalogenation under the presence of sodium alkoxide and Ethanol ?



Answer: (1,2,3)

 [Watch Video Solution](#)

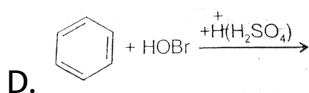
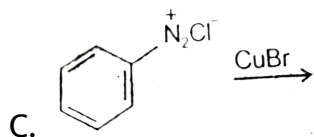
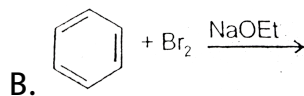
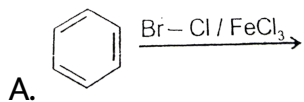
11. When ethyl chloride reacts with ethanolic sodium nitrite products formed are

- A. Ethylnitrite
- B. Nitroethane
- C. Ethanol
- D. Diethylether

Answer: (1,2)

 [Watch Video Solution](#)

12. Which of the following reactions can be used to introduce bromine atom in benzene ring ?



Answer: (1,3,4)

 [Watch Video Solution](#)

13. Anyl halides are practically inert toward nucleophilic substitution reactions. The reasons for this fact are

A. Because C-X bond has partial double bond character due to conjugation between lone pair of X and π electrons of

aromatic ring .

B. No S_N1 reaction because aryl carbocations are unstable

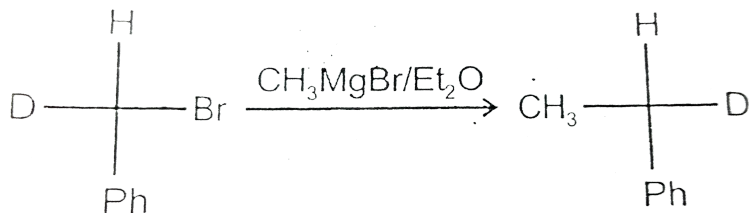
C. No S_N2 reaction because aromatic π electron cloud do not allow backside attack of Nu^-

D. Product obtained through nucleophilic substitution reactions are non aromatic

Answer: (1,2,3)

 Watch Video Solution

14. Consider the following reaction



Correct statement regarding the given product is

- A. Inversion of configuration occurs at chiral centre
- B. The reaction follows S_N2 mechanism
- C. Rate of reaction increases with increasing the concentration of CH_3MgBr
- D. The reaction follows S_N1 mechanism and hence racemization occurs

Answer: (2,3)

 [Watch Video Solution](#)

15. Which of the following statements are true about aryl halides ?

- A. Formation of phenol from chlorobenzene through Dow's process involves S_N2 mechanism

B. Presence of electron withdrawing groups at o and p - position in aryl halide leads to the greater reactivity towards a nucleophile

C. When chlorobenzene is treated with KNH_2 benzyne intermediate is formed

D. At NTP chlorobenzene reacts with NaOMe to give phenylmethyl ether

Answer: (2,3)



Watch Video Solution

16. Which of the following reagents can be used to convert alkyl halide into alkane ?

A. Action of Grignard reagent

B. Action of Bu_3SnH

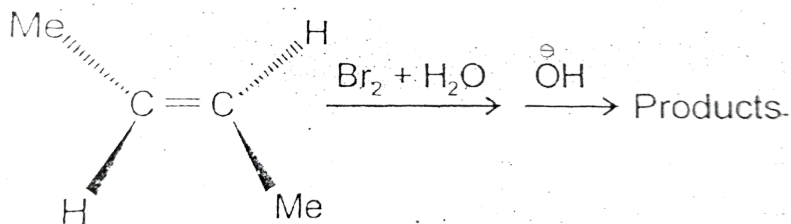
C. Action of superacid

D. Action of $K^+ O^- C(CH_3)$

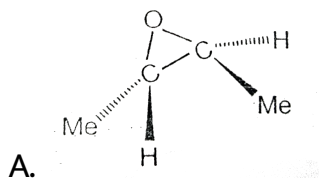
Answer: (1,2)

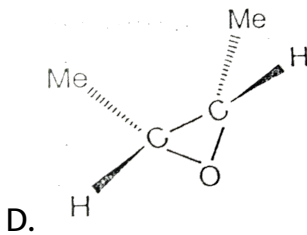
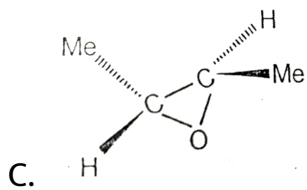
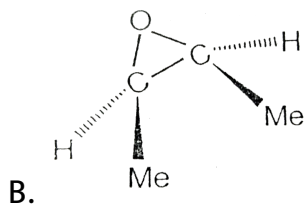
 Watch Video Solution

17. Consider the following sequence of reaction



Identify the structures of products

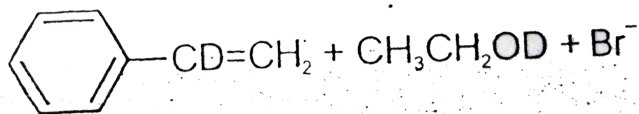
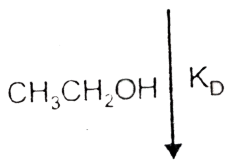
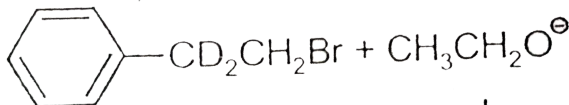
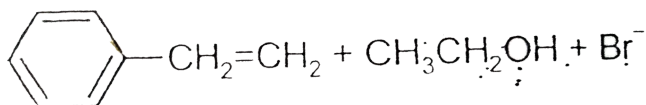
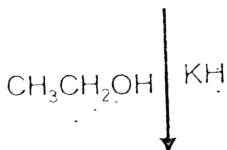
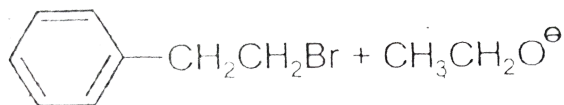




Answer: (1,3)

 [Watch Video Solution](#)

18. Complete the following reaction



- A. At same temperature K_H is found to be 7.1 times K_D
- B. At same temperature K_D is found to be 7.1 times K_H
- C. Less energy required to break a C - H bond compared to C - D bond

D. Less energy required to break a C - D bond compared to C - H bond

Answer: (2,3)

 [Watch Video Solution](#)

Assignment (Section - D) (Linked Comprehension Type Question)

1. Compound which rotates the plane polarised light is known as optically active compound . On the basis of direction of rotation two forms of an optically active compounds are termed as dextro and laevo rotatory . The two are termed as enantiomers . If we have a 1 : 1 mixture of d and l isomers of a given chiral compound , optical rotation of such mixture is zero Such a mixture is optically inactive and is called a racemic modification.

The net specific rotation of any mixture of the d and isomers of a

given chiral compound is equal to the weighted average of the rotations due to both the isomers. Mathematically it can be expressed as :

$$[\alpha]_{\neq t} = f_d[\alpha_d] + f_l[\alpha_l]$$

Where f_d and f_l are fractions of d and l isomers respectively and

$[\alpha_d]$, $[\alpha_l]$ are their specific rotations

The pure d isomer of certain chiral compound has

$[\alpha]_d^{25} = +55^\circ$. A non racemic mixture of this compound has a

net $[\alpha]_d^{25} = -11^\circ$. What is the fraction of this isomer in

mixture ?

A. 0.40

B. 0.6

C. 0.3

D. 0.70

Answer: 1



2. Compound which rotates the plane polarised light is known as optically active compound . On the basis of direction of rotation two forms of an optically active compounds are termed as dextro and laevo rotatory . The two are termed as enantiomers . If we have a 1 : 1 mixture of d and l isomers of a given chiral compound , optical rotation of such mixture is zero Such a mixture is optically inactive and is called a racemic modification.

The net specific rotation of any mixture of the d and l isomers of a given chiral compound is equal to the weighted average of the rotations due to both the isomers Mathematically it can be expressed as :

$$[\alpha]_{\neq t} = f_d[\alpha_d] + f_l[\alpha_l]$$

Where f_d and f_l are fractions of d and l isomers respectively and $[\alpha_d]$, $[\alpha_l]$ are their specific rotations

What is the enantiomeric excess in any pure sample of an optically active substance ?

A. 0.5

B. 1

C. 0

D. Depends upon the specific rotation

Answer: 2



[View Text Solution](#)

3. Compound which rotates the plane polarised light is known as optically active compound . On the basis of direction of rotation two forms of an optically active compounds are termed as dextro and laevo rotatory . The two are termed as enantiomers . If we have a 1 : 1 mixture of d and l isomers of a given chiral compound ,

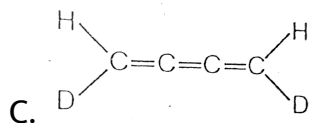
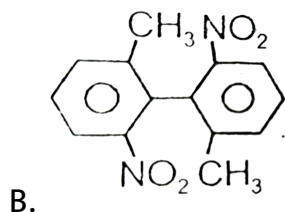
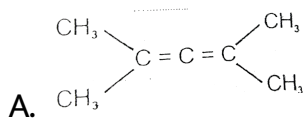
optical rotation of such mixture is zero Such a mixture is optically inactive and is called a racemic modification.

The net specific rotation of any mixture of the d and l isomers of a given chiral compound is equal to the weighted average of the rotations due to both the isomers Mathematically it can be expressed as :

$$[\alpha]_{\neq t} = f_d[\alpha_d] + f_l[\alpha_l]$$

Where f_d and f_l are fractions of d and l isomers respectively and $[\alpha_d]$, $[\alpha_l]$ are their specific rotations

Which of the following molecule can be resolved into enantiomers ?



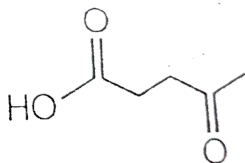
D. All of these

Answer: 2

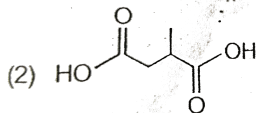
 [View Text Solution](#)

4. A compound (A) has molecular formula C_5H_9Cl It does not react with bromine in CCl_4 On treatment with a strong base it produces a single compound (B) (B) has a molecular formula C_5H_8 and reacts with Baeyer's reagent . Reductive ozonolysis of (B) produces a compound (C) which has a molecular formula $C_5H_8O_2$

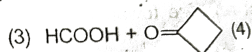
What would be the oxidative ozonolysis product of B ?



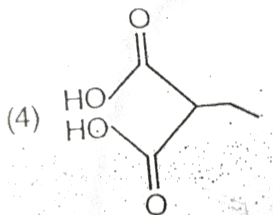
A.



B.



C.



D.

Answer: 2



Watch Video Solution

5. A compound (A) has molecular formula C_5H_9Cl . It does not react with bromine in CCl_4 . On treatment with a strong base it produces a single compound (B). (B) has a molecular formula C_5H_8 and reacts with Baeyer's reagent. Reductive ozonolysis of (B) produces a compound (C) which has a molecular formula



formation of (B) from (A) involves

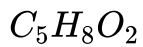
- A. S_N2 Mechanism
- B. E_1 mechanism
- C. E_2 Mechanism
- D. 50% E_1 and 50% E_2 mechanism

Answer: 3

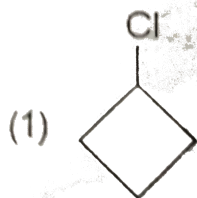


[Watch Video Solution](#)

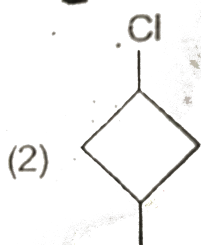
6. A compound (A) has molecular formula C_5H_9Cl It does not react with bromine in CCl_4 On treatment with a strong base it produces a single compound (B) (B) has a molecular formula C_5H_8 and reacts with Baeyer's reagent . Reductive ozonolysis of (B) produces a compound (C) which has a molecular formula



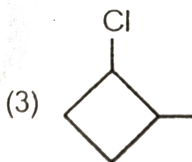
On the basis of the given data what would be the structure of A?



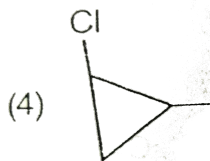
A.



B.



C.

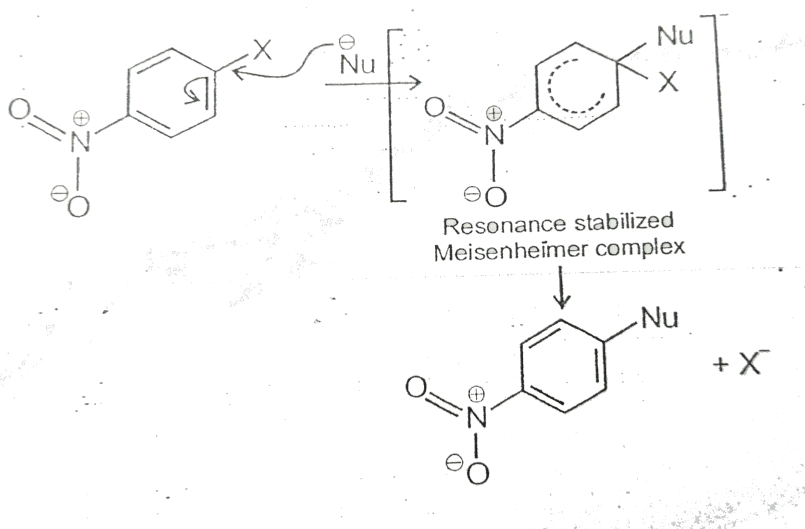


D.

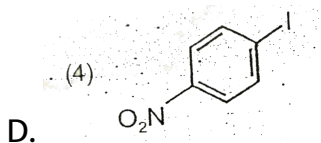
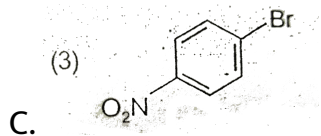
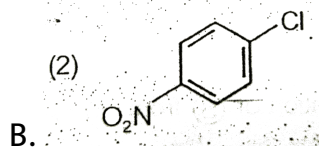
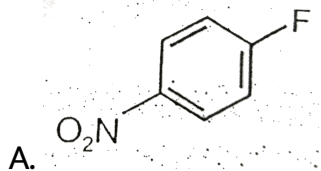
Answer: 2

 [Watch Video Solution](#)

7. Because of the resonance stabilization of Arylhalides they are unreactive toward normal nucleophilic substitution reactions . However arylhalides having strong electron withdrawing groups at ortho and para positions give aromatic nucleophilic substitution reactions (S_NAr mechanism) , which involves a resonance stabilized carbanion called Meisenheimer complex



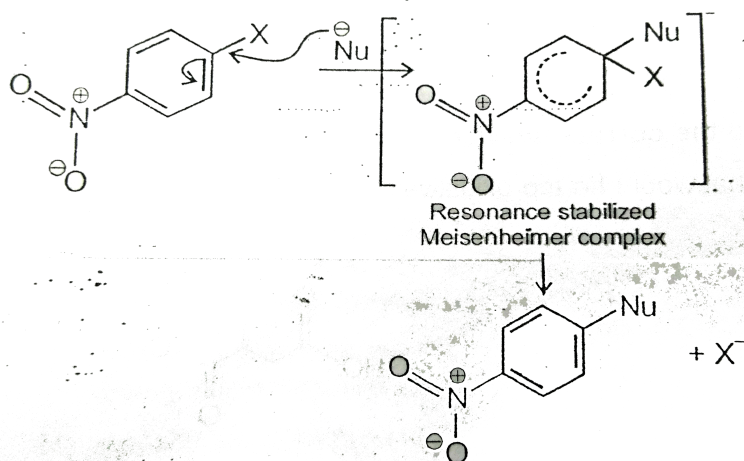
Which arylhalide is most reactive toward S_NAr mechanism ?



Answer: A

 Watch Video Solution

8. Because of the resonance stabilization of Arylhalides they are unreactive toward normal nucleophilic substitution reactions. However arylhalides having strong electron withdrawing groups at ortho and para positions give aromatic nucleophilic substitution reactions (S_NAr mechanism), which involves a resonance stabilized carbanion called Meisenheimer complex



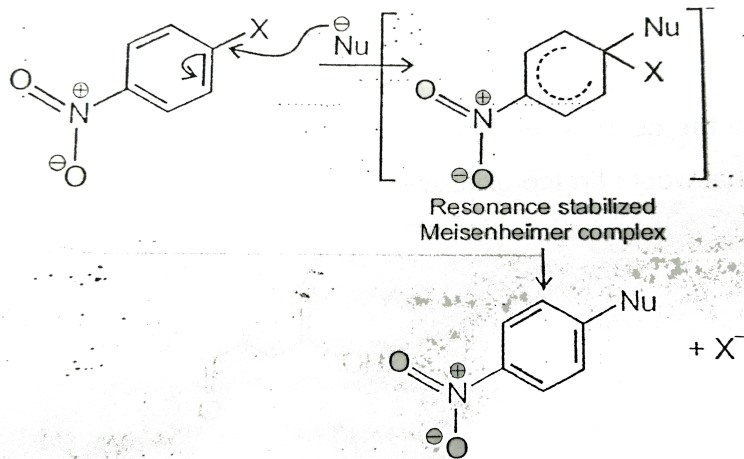
Which of the following statement is / are true ?

- A. S_NAr proceeds through elimination / addition mechanism
- B. Formation of elimination product is the rate determining step
- C. Formation of Meisenheimer complex is the rate determining step
- D. S_NAr mechanism involves inversion of configuration

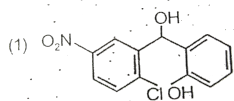
Answer: C

 [Watch Video Solution](#)

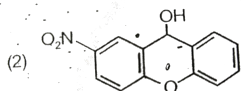
9. Because of the resonance stabilization of Arylhalides they are unreactive toward normal nucleophilic substitution reactions . However arylhalides having strong electron withdrawing groups at ortho and para positions give aromatic nucleophilic substitution reactions (S_NAr mechanism) , which involves a resonance stabilized carbanion called Meisenheimer complex



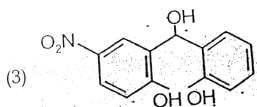
Which of the following statement is / are true ?



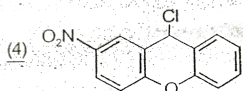
A.



B.



C.



D.

Answer: B



Assignment (Section - E) (Assertion - Reason type Questions)

1. STATEMENT : Aryl halides are more reactive than alkyl towards nucleophilic substitution reaction

STATEMENT : 2 Aryl halides have stronger C-X bond as compared to alkyl halides

- A. Statement -1 is True Statement -2 is True : Statement -2 is a correct explanation for Statement -1
- B. Statement -1 is True , Statement -2 is True : Statement -2 is NOT a correct explanation for Statement -1
- C. Statement-1 is True , Statement is False
- D. Statement -1 is False Statement -2 is True

Answer: D

 Watch Video Solution

2. STATEMENT : $CH_3 - O - CH_2 - Br$ is hydrolyzed more readily than $CH_3 - \underset{\substack{| \\ Cl}}{CH} - CH_3$

STATEMENT -2 : Secondary halides are more reactive than primary alkyl halides towards hydrolysis

 Watch Video Solution

3. Statement -1 : $CHCl_3$ is more acidic than CHF_3

Statement -2 : $\overset{\ominus}{C}Cl_3$ is stabilized through $p\pi - d\pi$ back bonding

A. Statement-1 is True , Statement-2 is True , Statement-2 is a correct explanation for Statement-1

B. Statement-1 is True , Statement-2 is True , Statement-2 is NOT

a correct explanation for Statement-1

C. Statement-1 is True , Statement-2 is False

D. Statement-1 is False , Statement-2 is True

Answer: A

 [Watch Video Solution](#)

4. Statement -1 : S_N2 reaction of $CH_3 - Br$ faster in DMSO than in H_2O

Statement -2 : DMSO has greater capability to solvate nucleophile

 [Watch Video Solution](#)

5. Statement -1 : When treated with $AgNO_2$ ethyl bromide gives $CH_3CH_2 - NO_2$ as the major product

Statement -2 : $\overset{\ominus}{N}O_2$ is an ambident nucleophile

 [Watch Video Solution](#)

6. Statement -1 : Tertiary alkyl halides are more reactive than 1° alkyl towards elimination

Statement -2 : Tertiary alkyl halides give more stable carbanion

 [Watch Video Solution](#)

7. Statement-2 : 1,1- dichloroethane on treatment with aq KOH yield ethanal

Statement -2 : Ethylene dichloride is a unsaturated compound.

 [Watch Video Solution](#)

Assignment (Section - F) (Matrix - Match Type Question)

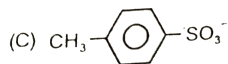
1. Match the following

Match the following

Column-I

(A) I^-

(B) F^-



(D) OH^-

Match the following

Column-I

Column-II

(p) A good leaving group

(q) Very weak base

(r) A good nucleophile in polar protic solvent

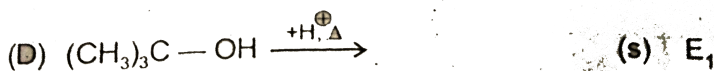
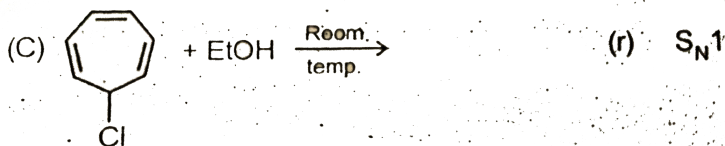
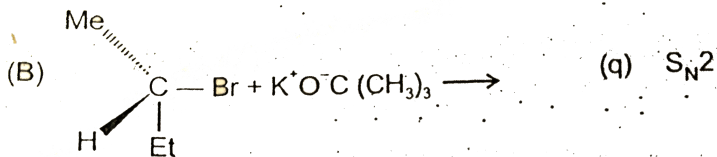
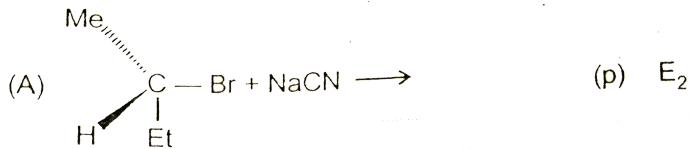
(s) A poor leaving group

Column-II



Watch Video Solution

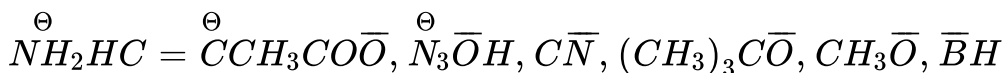
2. Match Column-I reaction condition with Column -II mechanistic path for the formation of major product



 [Watch Video Solution](#)

Assignment (Section - G) (Integer Answer Type Question)

1. How many of the given nucleophiles will predominantly give substitution reaction with 3-bromo-cyclohexene?



 [View Text Solution](#)

Assignment (Section - H) (Multiple True -False Type Questions)

1. Statement -1 : Rate of S_N1 reaction is faster than that of S_N2 reaction

Statement -2 : S_N2 reaction is favoured by polar aprotic solvent

Statement -3 : S_N1 reaction involves racemization

A. TTT

B. FFT

C. FTT

D. TFT

Answer: C



[Watch Video Solution](#)

2. Statement -1: Acid catalyzed dehydration follows E_1 mechanism

Statement - 2 : Tertiary alcohols are more reactive than primary alcohols towards HBr.

Statement -3 : Dehydrohalogenation of alkyl halide follows E_2 mechanism

A. TTF

B. TFT

C. FFT

D. TTT

Answer: A

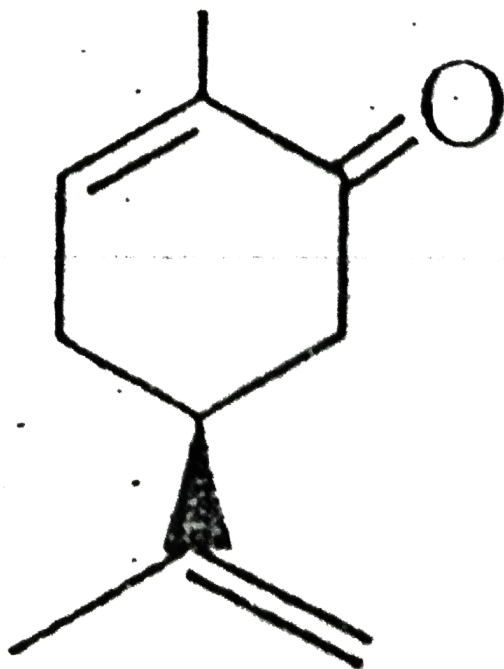


Watch Video Solution

Assignment (Section - I) (Subjective Type Questions)

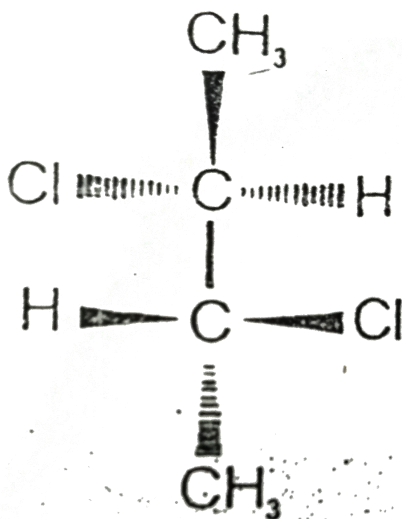
1. Structure of one of the enantiomer of carvone is given below.

Find the asymmetric carbon atom and determine whether it has (R) of (S) configuration .



Watch Video Solution

2. Draw Fischer projection of

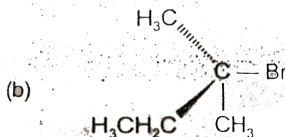
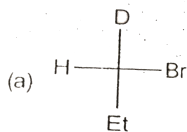


Find the absolute configuration for asymmetric carbon atoms and also write the configuration of enantiomer and diastereomers of the given compounds .

 [Watch Video Solution](#)

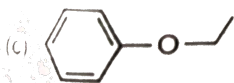
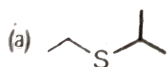
3. Give all the products expected including pertinent stereochemistry when each of the following compounds react

with sodium methoxide in methanol .

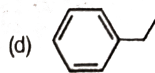


 **Watch Video Solution**

4. Given the structure of the nucleophile that could be used to convert ethylbromide into each of the following compounds in an S_N2 reaction .

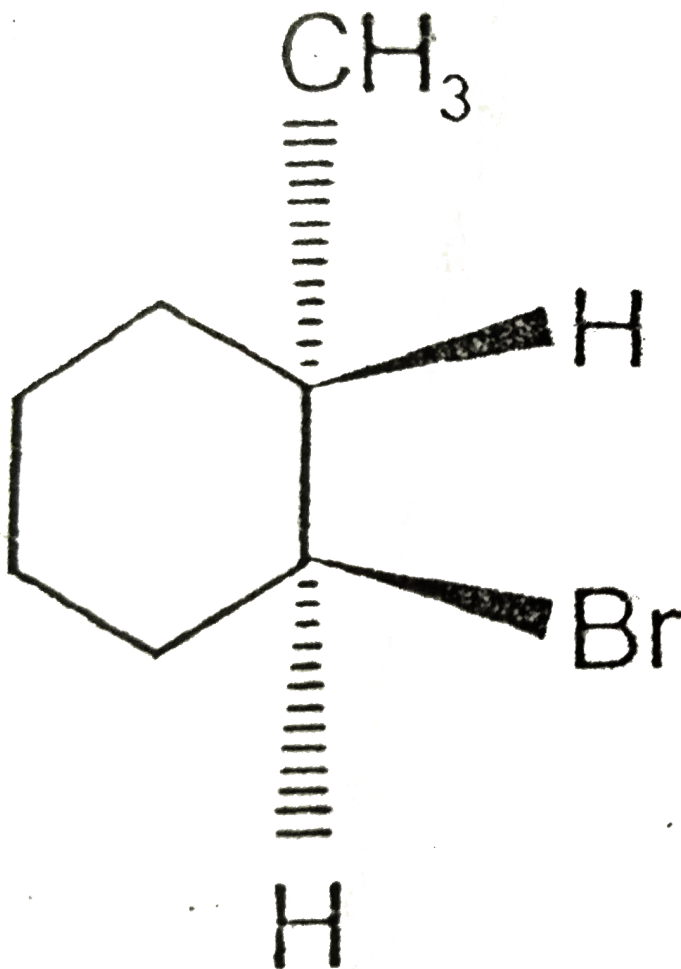


Explain,



 **Watch Video Solution**

5. Explain

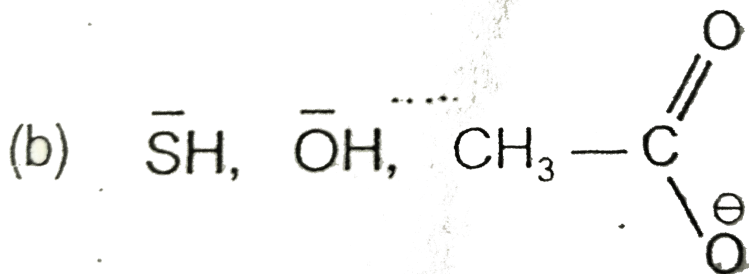
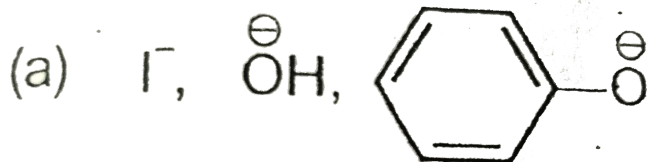


gives less

substituted alkene as the major product when treated with alcoholic KOH

 Watch Video Solution

6. Compare the nucleophilicity of given nucleophiles in aqueous medium Give explanation for your order



 Watch Video Solution

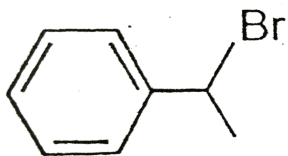
7. Tertiary alkyl halide undergoes solvolysis in either acetic acid or in ethanol .

(a) What is the solvolysis product in each solvent

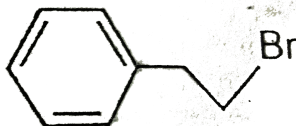
(b) In which solvent reaction is more rapid and why ?

 [Watch Video Solution](#)

8. Both the reactants can be used to prepare styrene through dehydrohalogenation reaction . Which alkyl halide is better substrate to prepare styrene ?



(A)



(B)

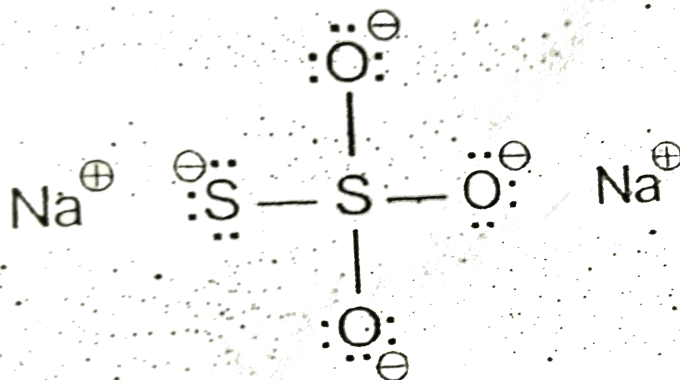
 [Watch Video Solution](#)

9. Two isomeric S_N2 products are possible when sodium thiosulphate is allowed to react with one equivalent of methyl

iodide in methanol solution

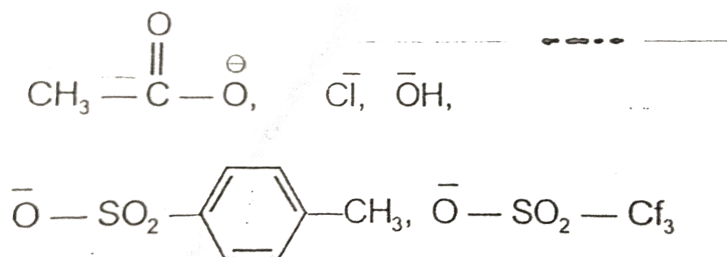
(a) Give the structures of the two products

(b) What would be the major product of this reaction



 [Watch Video Solution](#)

10. Arrange the given species in the increasing order of Leaving group ability

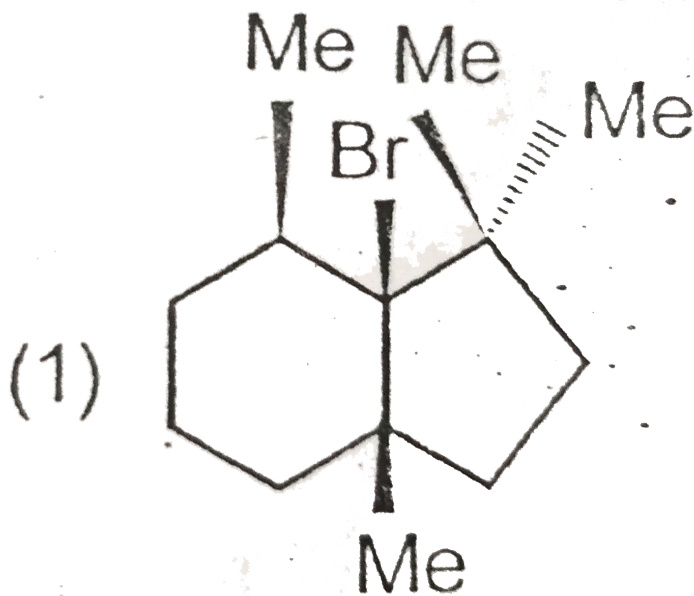


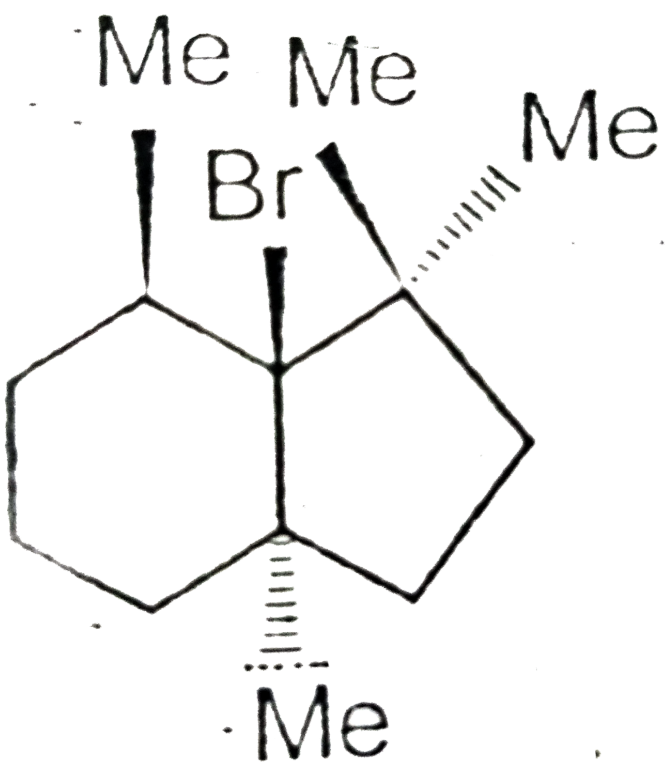
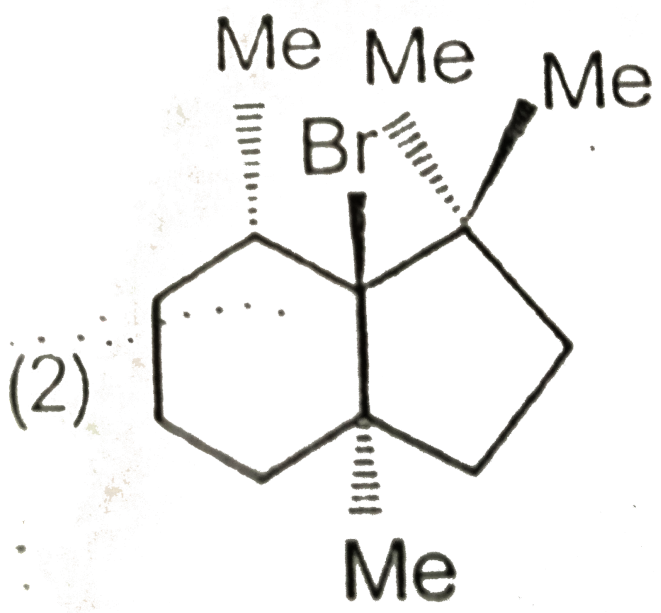


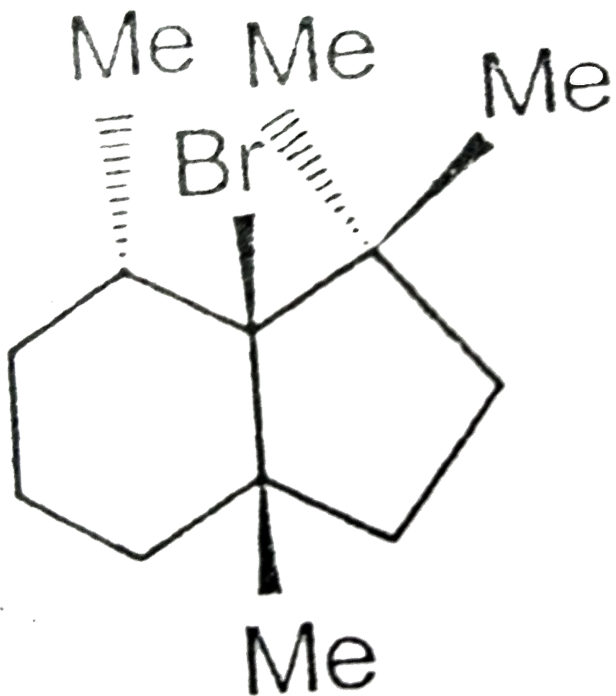
Watch Video Solution

Assignment (Section - I) (Aakash Challenger Questions)

1. Which will not react by E_2 mechanism ?

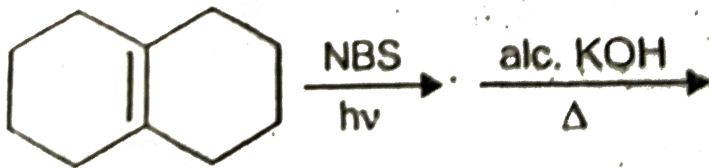






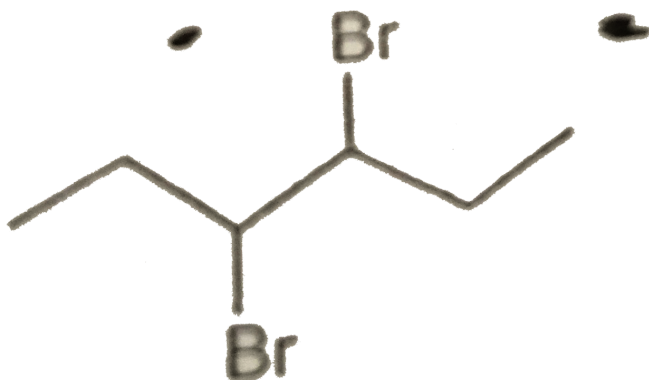
[Watch Video Solution](#)

2. Write the structure of predominant bicycloalkadiene formed in the given sequence of reaction



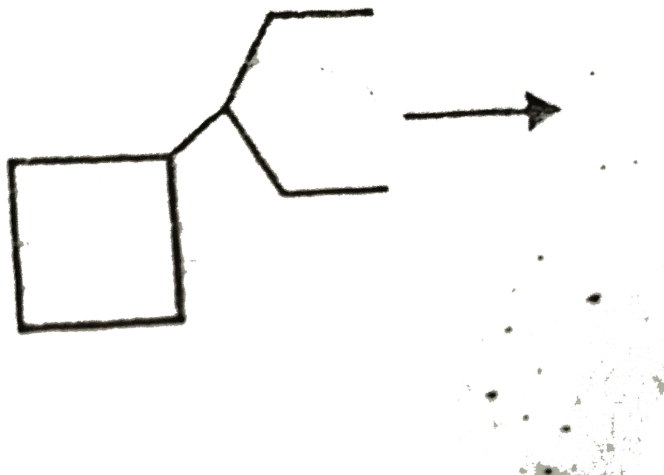
[▶ Watch Video Solution](#)

3. How many elimination products are formed when the given dibromo compound is heated with 2 equivalent of sodium ethoxide in ethanol ?



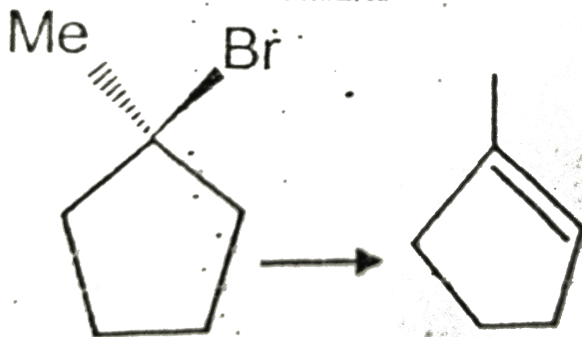
[▶ Watch Video Solution](#)

4. How many mono chloro derivatives are possible , when the given compound is subjected to monochlorination?



 [Watch Video Solution](#)

5. The reagents that will accomplish the following transformation in good yield is / are

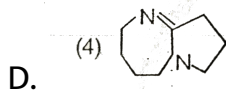


A. $CH_3CH_2ONa / CH_3CH_2, 25^\circ$

B. $CH_3CH_2OH, 25^\circ C$

C. $(CH_3)_3COK / (CH_3)_3COH$

(2) $CH_3CH_2OH, 25^\circ C$



Watch Video Solution

Try Yourself

1. Give IUPAC names of the following k structures



[View Text Solution](#)

2. Write structures of the following compounds

(i) 1- Bromomethyl -2- chlorocyclohexene

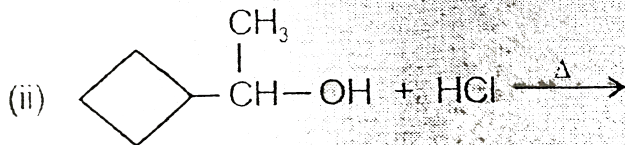
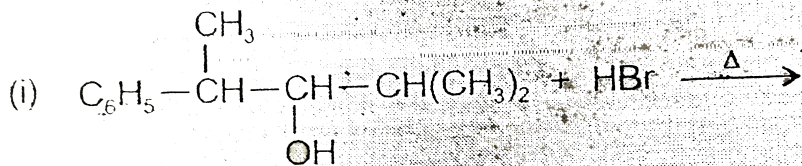
(ii) 1- chloro-2- chloromethyl -3- isopropyl -4- methylpentane

2-(4- bromophenyl)-3- chlorobut-2- ene



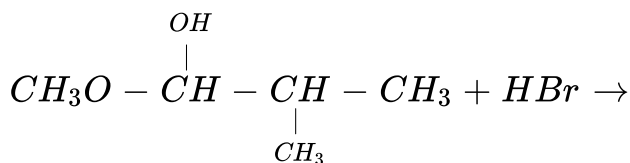
[Watch Video Solution](#)

3. Identify the major and minor products in the following reactions



 [Watch Video Solution](#)

4. What is the major product formed in the following reaction



 [Watch Video Solution](#)

5. A hydrocarbon of molecular formula C_5H_{10} on monochlorination gives one product and on dichlorination gives three products

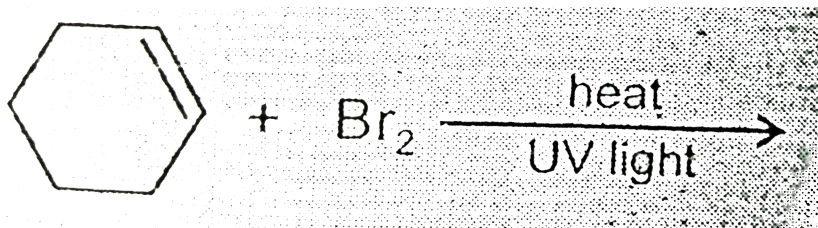
(excluding stereoisomers) . Identify the hydrocarbon .

 [Watch Video Solution](#)

6. Name the alkane that forms only one product of formula $C_5H_{11}Cl$ by chlorination.

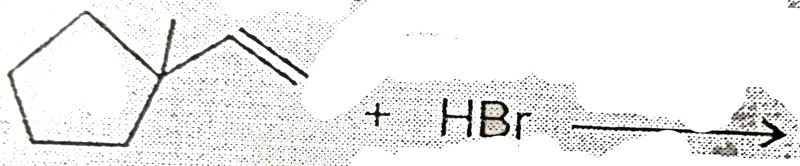
 [Watch Video Solution](#)

7. Identify the major product in the following reaction



 [Watch Video Solution](#)

8. Predict the major product formed in the following reaction



[Watch Video Solution](#)

9. Convert aniline to fluorenone

[Watch Video Solution](#)

10. Starting from propene synthesize 1,1-dibromopropane.

[Watch Video Solution](#)

11. An optically inactive compound (A) having molecular formula $C_4H_{11}H$ on treatment with HNO_2 gave an alconot (B) which on heating with conc. H_2SO_4 at 440 k gave an alkene (C) . (C) on treatment with HBr gave an optically active compound (D) having molecular formula C_4H_9Br Identify (A) ,(B) ,(C) and (D).

 [Watch Video Solution](#)

12. Convert chloroform to chlorobenzene in three steps using appropriate reagents

 [View Text Solution](#)

13. Which compound is treated with KCN to get butane nitrile ?

 [Watch Video Solution](#)

14. Give the organic products of the following reactions



 [Watch Video Solution](#)

15. Identify the product formed when $C_6H_6Cl_6$ is heated with alc.

KOH

 [Watch Video Solution](#)

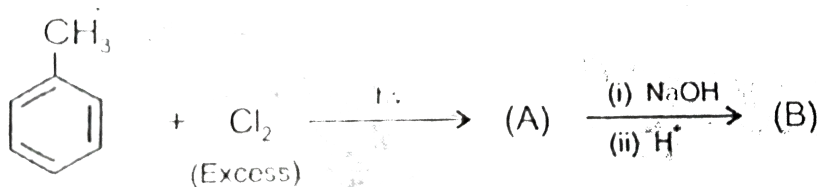
16. What happens when (+)2 - iodobutane is treated with NaI in acetone?

 [Watch Video Solution](#)

17. Convert C_6H_6 to C_6H_5D

 [View Text Solution](#)

18. Predict the final product (B) formed in the following sequence of reactions



 [Watch Video Solution](#)

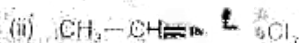
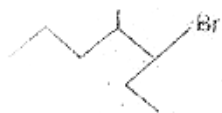
19. Convert aniline to the phenylisocyanide

 [Watch Video Solution](#)

20. what happens when chloroform is exposed to air in presence of sunlight ? Explain with suitable mechanism.

 [Watch Video Solution](#)

21. Given IUPAC names of the following structures .



 [View Text Solution](#)

22. Write structures of the following compounds

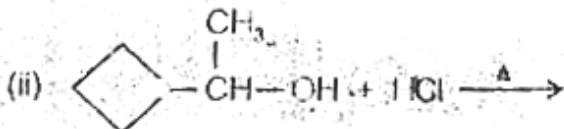
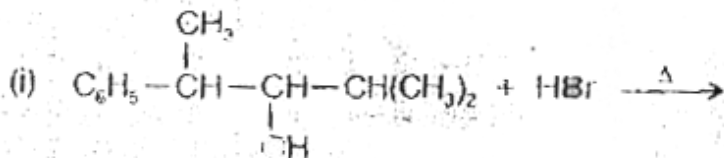
(i) 1- Bromomethyl -2- chlorocyclohexene

(ii) 1- chloro-2- chloromethyl -3- isopropyl -4- methylpentane

2-(4- bromophenyl)-3- chlorobut-2- ene

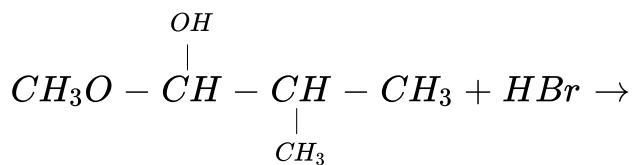
 [Watch Video Solution](#)

23. Identify the major and minor products in the following reactions



 Watch Video Solution

24. What is the major product formed in the following reaction ?



 Watch Video Solution

25. A hydrocarbon of molecular formula C_5H_{10} on monochlorination gives one product and on dichlorination gives three products (excluding stereoisomers). Identify the hydrocarbon.

 [Watch Video Solution](#)

26. Name the alkane that forms only one product of formula $C_5H_{11}Cl$ by chlorination.

 [Watch Video Solution](#)

27. Identify the major product in the following reaction.



 [Watch Video Solution](#)

28. Predict the major product formed in the following reaction .



[▶ Watch Video Solution](#)

29. Convert aniline to fluorebenzene

[▶ Watch Video Solution](#)

30. Starting from propene synthesize 1,1- dibromopropane.

[▶ Watch Video Solution](#)

31. An optically inactive compound (A) having molecular formula $C_4H_{11}H$ on treatment with HNO_2 gave an alconot (B) which on heating with conc. H_2SO_4 at 440 k gave an alkene (C) . (C) on treatment with HBr gave an optically active compound (D) having molecular formula C_4H_9Br Identify (A) ,(B) ,(C) and (D).

 [Watch Video Solution](#)

32. Convert chloroform to chlorobenzene in three steps using appropriate reagents .

 [Watch Video Solution](#)

33. Which compound is treated with KCN to get butane nitrile ?

 [Watch Video Solution](#)

34. Give the organic products of the following reactions



 [Watch Video Solution](#)

35. Identify the product formed when $C_6H_6Cl_6$ is heated with alc.

KOH

 [Watch Video Solution](#)

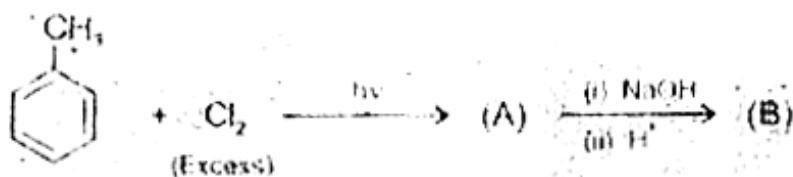
36. What happens when (+)2-iodobutane is treated with NaI in acetone?

 [Watch Video Solution](#)

37. Convert C_6H_6 to C_6H_5D .

[View Text Solution](#)

38. Predict the final product (B) formed in the following sequence of reactions



[Watch Video Solution](#)

39. Convert aniline to the phenylisocyanide

[Watch Video Solution](#)

40. what happens when chloroform is exposed to air in presenc of sunlight ? Explain with suitable mechanism.

 [Watch Video Solution](#)

EXERCISE

1. Which of the following is an example of aryl alkyl halide ?

A. p - chlorotoluenec

B. Chlorobenzene

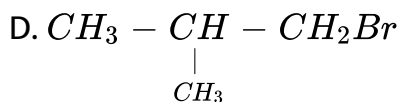
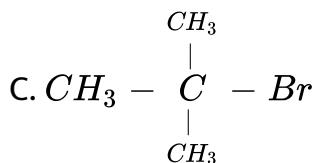
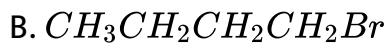
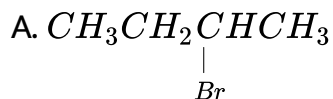
C. Allyl chloride

D. Benzyl chloride

Answer: D

 [Watch Video Solution](#)

2. Which of the following alkyl halides is iso-butyl bromide ?



Answer: D

 [Watch Video Solution](#)

3. How many isomeric halogen derivatives including stereoisomers are possible for $C_2H_2Br_2$?

A. 2

B. 3

C. 4

D. 5

Answer: B

 [Watch Video Solution](#)

4. Hunsdiecker reaction is used to prepare alkyl chloride and alkyl bromide starting from

A. Diazonium salt

B. Silver salt of carboxylic acids

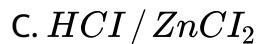
C. Sodium salt of carboxylic acids

D. Alcohols

Answer: B

 [Watch Video Solution](#)

5. The best reagent for converting an alcohol into the corresponding chloride is



Answer: D

 [Watch Video Solution](#)

6. Iso -butylene can be converted into tert -butyl bromide by its reaction with

- A. HBr
- B. Br_2
- C. HBr in the presence of peroxides
- D. HOBr

Answer: A

 [Watch Video Solution](#)

7. The number of isomers possible for the molecular formula $C_2FCIBrI$ is

- A. 2

B. 3

C. 4

D. 6

Answer: D



Watch Video Solution

8. Which of the following will react most readily with HI ?

A. CH_3OH

B. $(CH_3)_3COH$

C. CH_3CH_2OH

D. $(CH_3)_2CHOH$

Answer: B





Watch Video Solution

9. The isomer of C_6H_{14} which will give maximum number of monochloroderivative is

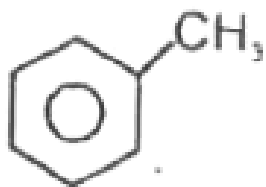
- A. 2,3 -dimethylbutane
- B. 2-methylpentane
- C. 3-methylpentane
- D. Hexane

Answer: B

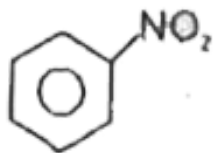


Watch Video Solution

10. Which of the following is most reactive towards electrophilic aromatic substitution for halogen ?



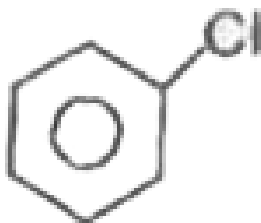
A.



B.



C.



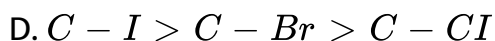
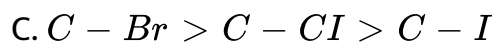
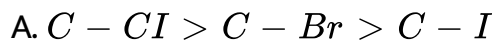
D.

Answer: A



Watch Video Solution

11. Amongst the C-X bond the correct bond energy order is



Answer: A



Watch Video Solution

12. Which of the following has highest boiling point ?

A. 1-chloropentane

B. 2-chloropentane

C. 3-chloropentane

D. All have equal boiling point

Answer: A

 [Watch Video Solution](#)

13. Out of the following compounds which one will have zero dipole moment ?

A. Chloromethane

B. Dichloromethane

C. Trichloromethane

D. Tetrachloromethane

Answer: D

 [Watch Video Solution](#)

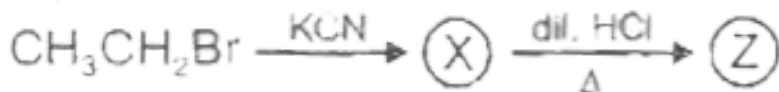
14. Treatment of ammonia with excess of ethyl chloride will yield

- A. Triethyl amine
- B. Diethyl amine
- C. Ethyl amine
- D. Tetraethyl ammonium chlorides

Answer: D

 [Watch Video Solution](#)

15. Identity Z in the following sequence



- A. CH_3COCl
- B. CH_3CONH_2

C. CH_3COOH

D. CH_3CH_2COOH

Answer: D

 [Watch Video Solution](#)

16. Most reactive halide towards S_N1 reactions is

A. n-butyl chloride

B. sec-butyl chloride

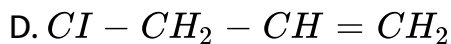
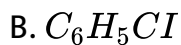
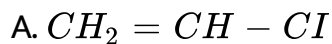
C. tert -butyl chloride

D. Allyl chloride

Answer: C

 [Watch Video Solution](#)

17. Which of the following is most reactive toward nucleophilic substitution reaction ?



Answer: D

 [Watch Video Solution](#)

18. NBS is a specific reagent for

A. Nucleophilic substitution reaction

B. Electrophilic substitution reaction

C. Allylic substitution

D. Electrophilic addition

Answer: C

 [Watch Video Solution](#)

19. In reaction $C_2H_5OH + Hx \xrightarrow{ZnX_2} C_2H_5X + H_2O$ the order of reactivity of HX is :

A. $HCl > HBr > HI$

B. $HI > HBr > HCl$

C. $HBr > HCl > HI$

D. $HI > HCl > HBr$

Answer: B

 [Watch Video Solution](#)

20. Which of the following is not true for S_{N1} reaction ?

- A. They occur through a single step concerted reaction
- B. They are favoured by polar solvents
- C. 3° alkyl halides generally react through this mechanism
- D. Concentration of nucleophile does not affect the rate of such reaction

Answer: A



Watch Video Solution

21. 2-Chloro-2-methylpropane on reaction with aqueous KOH gives X as the major product. X is

- A. 2- butene
- B. 2-methyl -1-butene
- C. 2-methyl -2 butene
- D. 2-methy-2 -butanol

Answer: D

 [Watch Video Solution](#)

22. Which of the following does not form Grignard reagent on reaction with Mg in the presence of ether?

- A. Chloroethane
- B. 1-chloropropane
- C. Bromobenzene
- D. Vinyl chloride

Answer: D

 [Watch Video Solution](#)

23. 1-phenyl-2-chloropropane on treating with alc. KOH gives mainly

- A. 1-phenyl propene
- B. 3-phenyl propene
- C. 1-phenyl-2-propanol
- D. 3-phenyl-1- propanol

Answer: A

 [Watch Video Solution](#)

24. An alkyl halide on reaction with sodium in the presence of ether gives 2,2,5,5-tetramethylhexane. The alkyl halide is

- A. 1-chloropentane
- B. 1-chloro-2,2-dimethylpropane
- C. 3-chloro-2,2-dimethylbutane
- D. 2-chloro-2-methylbutane.

Answer: B

 [Watch Video Solution](#)

25. Ethyl bromide reacts with lead sodium alloy to form:

- A. Tetraethyl lead
- B. Ethyl sodium

C. Ethane

D. Ethene

Answer: A

 [Watch Video Solution](#)

26. Allylbromide on dehydrobromination gives

A. Propadiene

B. Propylene

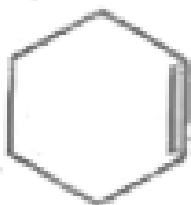
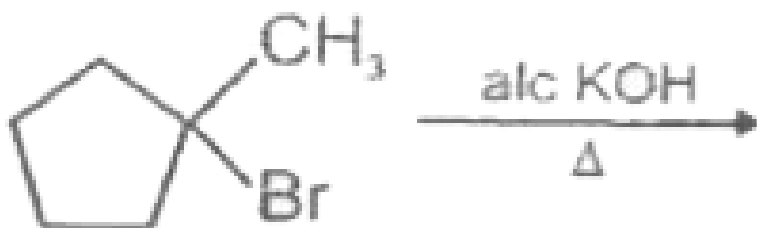
C. Allyl alcohol

D. Acetone

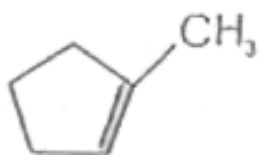
Answer: A

 [Watch Video Solution](#)

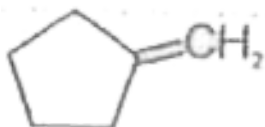
27. Identify the major product



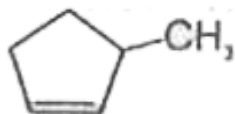
A.



B.



C.

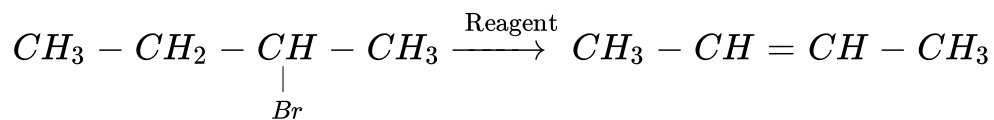


D.

Answer: B

 Watch Video Solution

28. Identify the most suitable reagent for the following conversion ?



- A. Aqueous KOH
- B. $(\text{CH}_3)_3\text{CO}^- \text{K}^+ / \Delta$
- C. alc , KOH / Δ
- D. All of these

Answer: C

 Watch Video Solution

B. E_1

C. $S_N Ar$

D. Both (2) & (3)

Answer: B

 [Watch Video Solution](#)

31. IUPAC name of Gammexene is

A. Hexachlorobenzene

B. Benzene hexachloride

C. 1,2,3,4,5,6- hexachlorocyclohexane

D. All of these

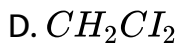
Answer: C

 [Watch Video Solution](#)



Watch Video Solution

32. Pyrene is trade name of _____ when used as fire extinguisher



Answer: C



Watch Video Solution

33. Which of the following with aqueous KOH will give acetaldehyde ?

A. 1,2 -dichloroethane

B. 1,1- dechloroethane

C. Chloroacetic acid

D. Ethyl chloride

Answer: B

 [Watch Video Solution](#)

34. Carbylamine test is performed in alcoholic KOH by heating a mixture of:

A. Chloroform and silver powder

B. Chloroform and a primary amine

C. An alkyl halide and a primary amine

D. An alkyl cyanide and a primary amine

Answer: B

 [Watch Video Solution](#)

35. What happens when CCl_4 is treated with $AgNO_3$ solution ?

- A. NO_2 will be evolved
- B. A white ppt. of $AgCl$ will form
- C. CCl_4 will dissolve in $AgNO_3$ solution
- D. Nothing will happen

Answer: D



Watch Video Solution

36. DDT is formed from

- A. Benzene and Chlorobenzene
- B. Chloral and chlorobenzene

C. Chloral and benzene

D. Chlorobenzene and chlorine

Answer: B

 [View Text Solution](#)

37. Iodoform in medicines is used as

A. Antiblotic

B. Antiseptic

C. Analgesic

D. Antipyretic

Answer: B

 [Watch Video Solution](#)

38. If chloroform is left open in the air in the presence of sunlight

- A. Explosion takes place
- B. Polymerisation takes place
- C. Poisonous gas phosgene is formed
- D. No reaction takes place

Answer: C



Watch Video Solution

39. Non - sticking frying pans are coated with teflon which is polymer of
of

- A. Ethylene
- B. Styrene

C. Tetrafluoro ethylene

D. Chloro- fluoromethane

Answer: C

 [View Text Solution](#)

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

A. CH_3Cl , CH_3Br , CH_3F

B. CH_3Cl , CH_3F , CH_3Br

C. CH_3Br , CH_3Cl , CH_3F

D. CH_3Br , CH_3F , CH_3Cl

Answer: B

 [Watch Video Solution](#)

ASSIGNMENT SECTON - A

1. Which of the following is a secondary alkyl halide ?

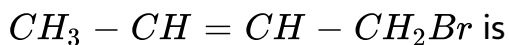
- A. Isobutyl chloride
- B. isopentyl chloride
- C. Neopentyl chloride
- D. Isopropyl chloride

Answer: D



Watch Video Solution

2. The IUPAC name of the compound



A. 4-Bromobut-2-ene

B. 1-Bromobut -2-ene

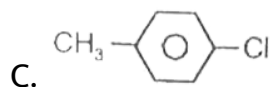
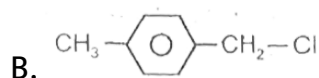
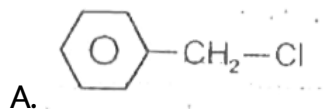
C. 3-bromobut -2-ene

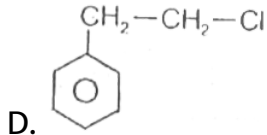
D. allyl bromide

Answer: B

 [Watch Video Solution](#)

3. Which of the following may be classified as an aryl halide ?

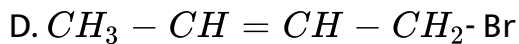
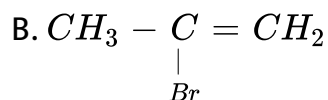
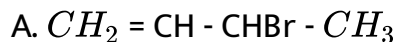




Answer: C

 [Watch Video Solution](#)

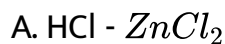
4. Which of the following belongs to the class of vinyl halides ?



Answer: B

 [Watch Video Solution](#)

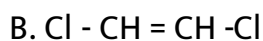
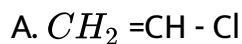
5. Which one of the following reagents will not convert ethl alcohol into ethyl chloride ?

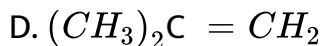
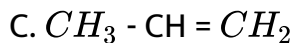


Answer: B

 [Watch Video Solution](#)

6. The addition of HBr is the easiest with

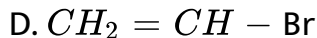
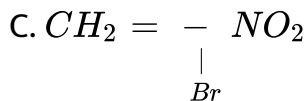
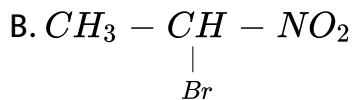
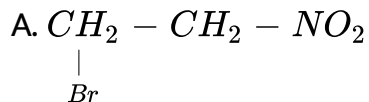




Answer: D

 Watch Video Solution

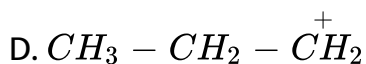
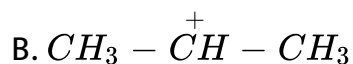
7. $CH_2 = CH - NO_2 + HBr \rightarrow P$, The major product P is



Answer: A

 Watch Video Solution

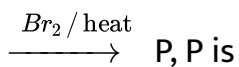
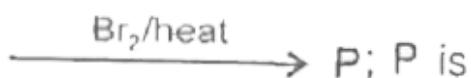
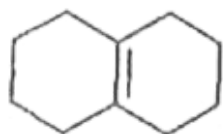
8. The intermediate during the addition of HCl to propene in the presence of peroxide is :

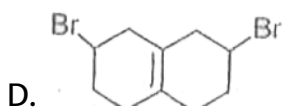
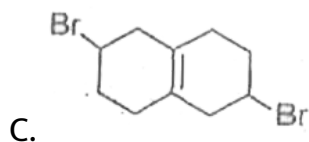
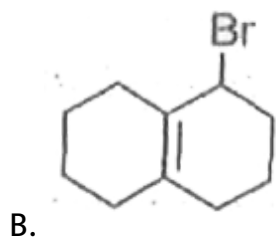
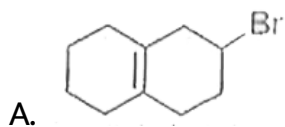


Answer: B

 Watch Video Solution

9.





Answer: B

 [Watch Video Solution](#)

10. The addition of propene with HOCl proceeds via the addition of:

A. H^+ in the first step

B. Cl^+ in the first step

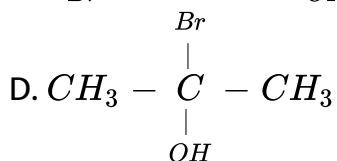
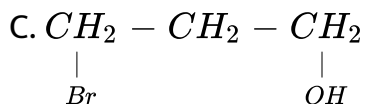
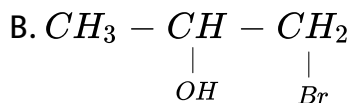
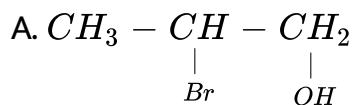
C. OH^- In the first step

D. Either H^+ or OH^- in first step

Answer: B

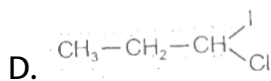
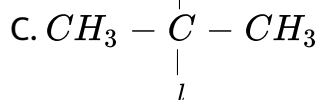
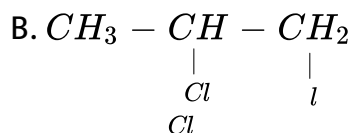
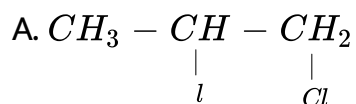
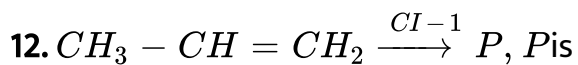
 **Watch Video Solution**

11. $CH_3 - CH = CH_2 + HOBr \rightarrow P$, The major product P is



Answer: B

 Watch Video Solution



Answer: B

 Watch Video Solution

13. Which of the following is correct for

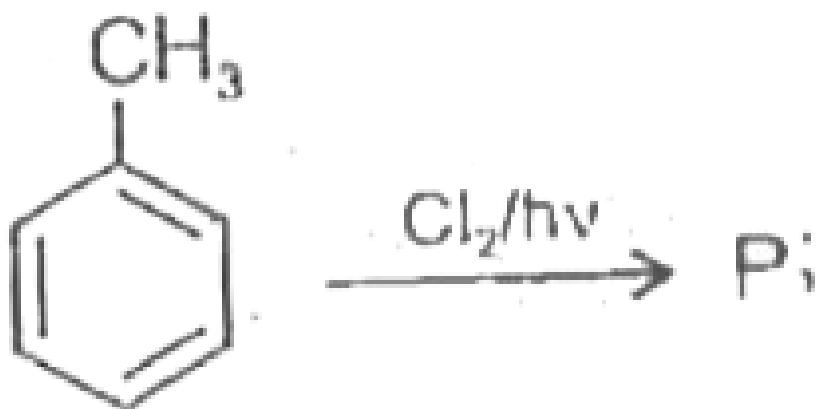
$\text{CH}_3\text{-CH=CH}_2$ with HBr in the presence of Peroxide?

- A. Electrophilic substitution
- B. Anti-Markovnikov's addition
- C. Nucleophilic substitution
- D. Markovnikov's addition

Answer: B

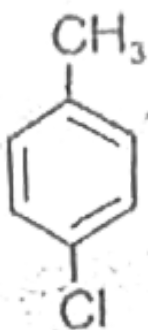


Watch Video Solution

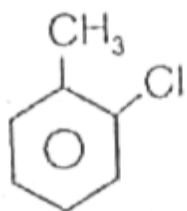


14.

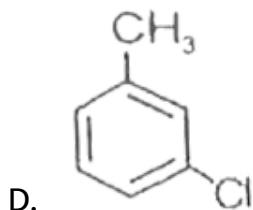
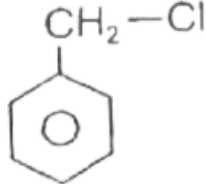
Product (P) is



A.



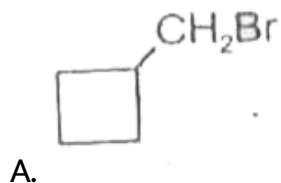
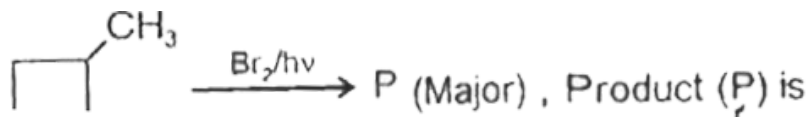
B.

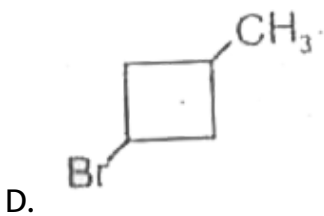
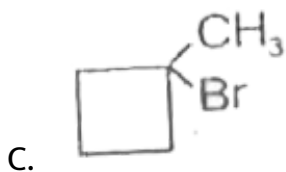
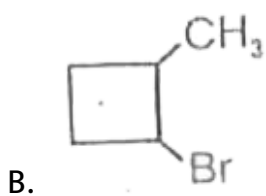


Answer: C

 [Watch Video Solution](#)

15. Complete the following reaction

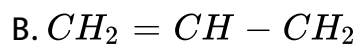




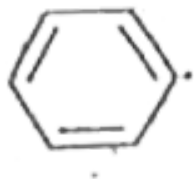
Answer: C

 [Watch Video Solution](#)

16. Which is most stable radical ?



c. $CH_3 - CH_2$



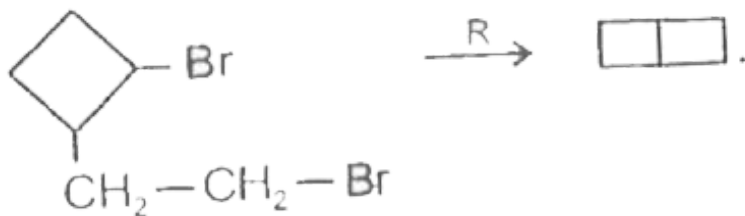
D.

Answer: B

 Watch Video Solution

17.

The reagent R is



A. NH_3

B. H_2O

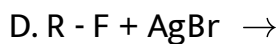
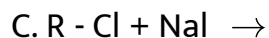
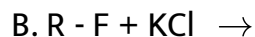
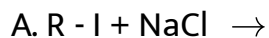
C. KCN

D. Na/ether

Answer: D

 [Watch Video Solution](#)

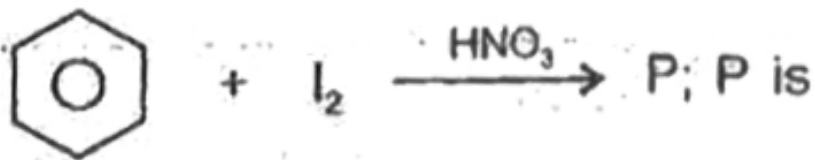
18. Which of the following halogen exchange reaction will occur in acetone ?



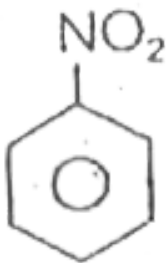
Answer: C

 [Watch Video Solution](#)

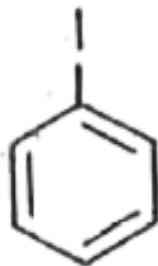
19. Complete the following reaction



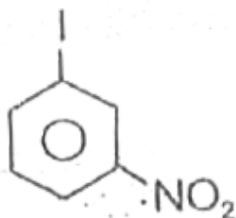
A.



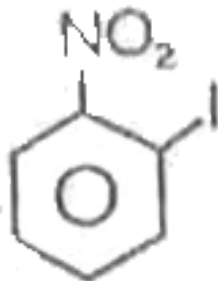
B.



C.



D.



Answer: B

 [Watch Video Solution](#)

20. $C_6H_5CH_3 \xrightarrow{Br_2 / FeBr_3}$ the reaction is called

A. Nucleophilic substitution

B. Free radical addition

C. Electrophilic substitution

D. Free radical substitution

Answer: C

 [Watch Video Solution](#)

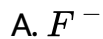
21. $C_6H_5N_2^+ Cl^- \xrightarrow{Cu_2Cl_2 / HCl}$, this reaction is named as

- A. Sandmeyer
- B. Swarts
- C. Wurtz-fitting
- D. Finkelstein

Answer: A

 [Watch Video Solution](#)

22. which is more reactive nucleophile in polar protic solvent ?

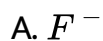


Answer: D



Watch Video Solution

23. Which is more reactive nucleophile in polar aprotic solvent ?



D. I^-

Answer: A

 [Watch Video Solution](#)

24. Which can not act as an ambident nucleophile ?

A. CN^-

B. NO_2^-

C. SCN^-

D. OH^-

Answer: D

 [Watch Video Solution](#)

25. Which of the following solvent is suitable for S_N1 reaction ?

- A. Non-polar
- B. Polar protic
- C. Polar aprotic
- D. all of these

Answer: B

 [Watch Video Solution](#)

26. For S_N1 mechanism which of the following is correct ?

- A. Inversion (100%)
- B. formation of carbocation
- C. Non-polar solvent

D. Elimination

Answer: B

 [Watch Video Solution](#)

27. The reaction , $CH_3Br + OH^- \rightarrow CH_3OH + Br^-$ obeys the mechanism

A. S_N1

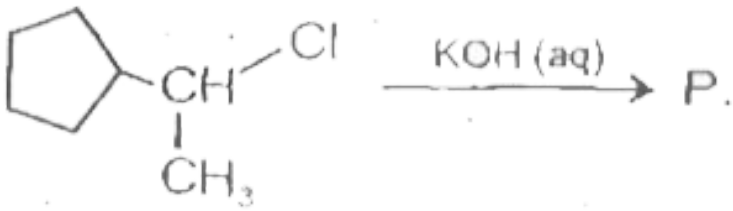
B. S_N2

C. S_E1

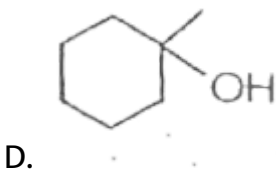
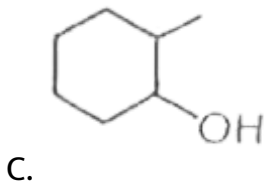
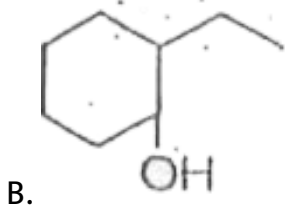
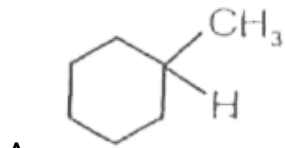
D. S_E2

Answer: B

 [Watch Video Solution](#)



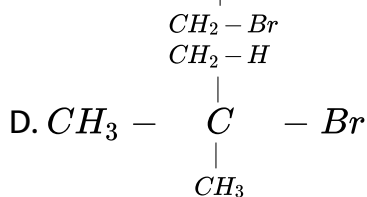
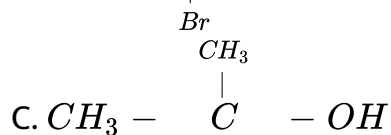
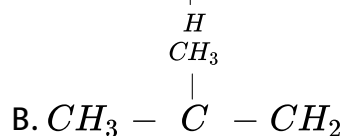
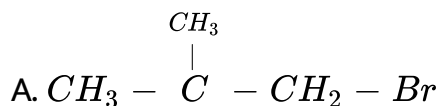
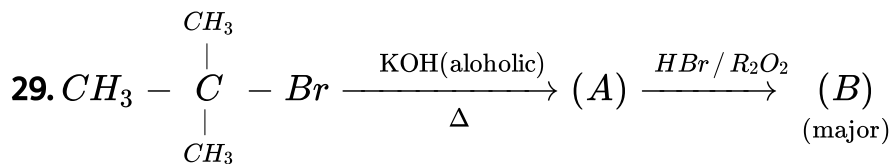
Product P (major) is



Answer: D



Watch Video Solution



Answer: A



View Text Solution

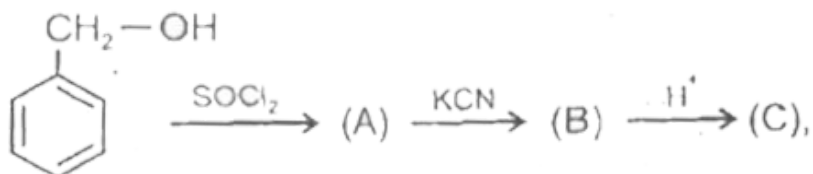
30. As S_N2 reaction at an asymmetric carbon of a compound always gives:

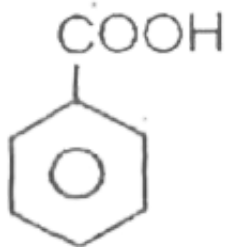
- A. An enantiomer of the substrate
- B. A product with opposite optical rotation
- C. A mixture of diastereomers
- D. A product with 100% inversion

Answer: D

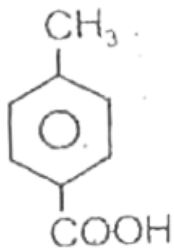
 Watch Video Solution

31. $\xrightarrow{\text{SOCl}_2}$ (A) $\xrightarrow{\text{KCN}}$ (B) $\xrightarrow{\text{H}^+}$ (C), the compound (C) is

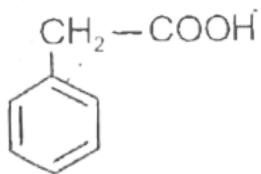




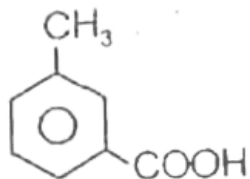
A.



B.



C.

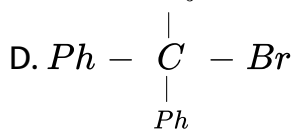
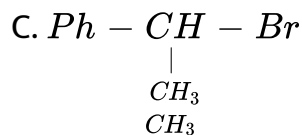
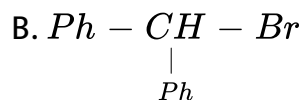
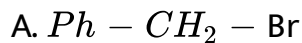


D.

Answer: C

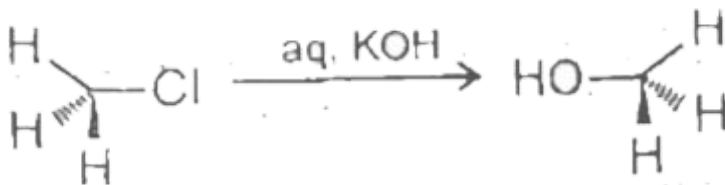
 [View Text Solution](#)

32. Which one is the most reactive towards S_N1 reaction ?



Answer: D

 Watch Video Solution



33.

The reaction goes through

A. S_N1

B. S_N2

C. E_2

D. E_1

Answer: B



Watch Video Solution

34. The order of E_2 elimination for alkyl halide is

A. $1^\circ > 2^\circ > 3^\circ$

B. $3^\circ > 2^\circ > 1^\circ$

C. $2^\circ > 3^\circ > 1^\circ$

D. $3^\circ > 1^\circ > 2^\circ$

Answer: B

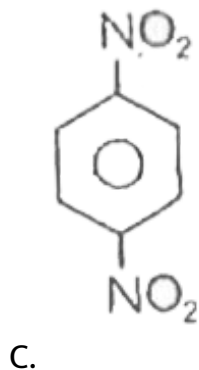
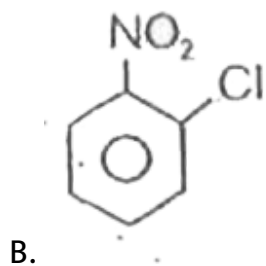
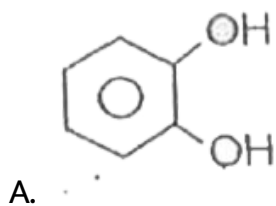
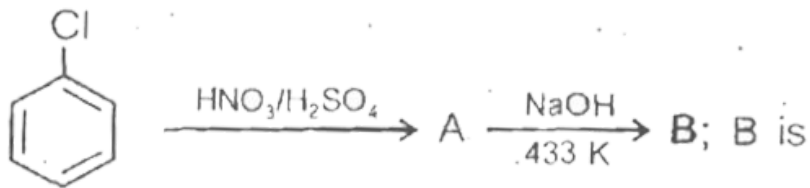
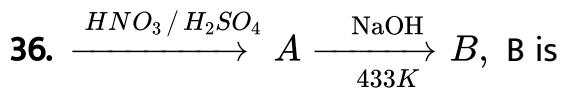
 [Watch Video Solution](#)

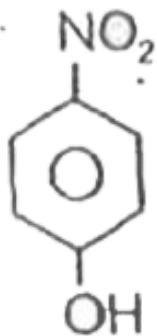
35. 2-Bromopentane is heated with $EtO^- Na^+$ in ethanol. The major product obtained is

- A. 2-Ethoxpentance
- B. Pent-1-ene
- C. Isobutane
- D. Pent-2-ene

Answer: D

 [Watch Video Solution](#)



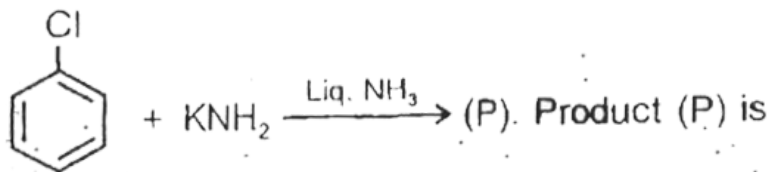


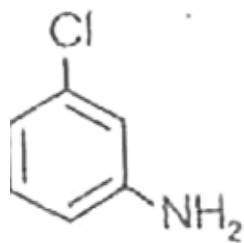
D.

Answer: D

 Watch Video Solution

37. Complete the following reaction

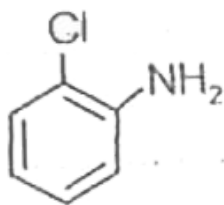




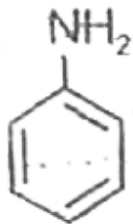
A.



B.



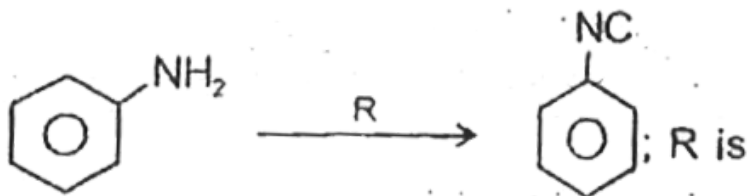
C.



D.

Answer: D

 Watch Video Solution



38.

A. N_2

B. CHCl_3/KOH (alcoholic)

C. NH_3

D. KCN

Answer: B

 [View Text Solution](#)

39. Which of the following acts as a poisonous gas ?



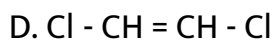
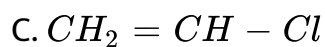
C. Benzene



Answer: A

 [Watch Video Solution](#)

40. Which of the following is used as fire extinguisher under the name pyrene ?



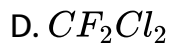
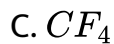
Answer: B



Watch Video Solution

41. Which of the following is used as a refrigerant ?





Answer: D

 [View Text Solution](#)

42. Which of the following is known as freon 12 ?



Answer: B

 [Watch Video Solution](#)

43. $(p - ClC_6H_4)_2CHCCl_3$ is used as a / an

- A. Antiseptic for wounds
- B. insecticide
- C. Pyrene
- D. Refrigerant

Answer: B



[Watch Video Solution](#)

44. CHI_3 is used as a / an

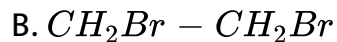
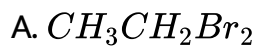
- A. Antiseptic for wounds
- B. insecticide
- C. Pyrene

D. Refrigerant

Answer: A

 [Watch Video Solution](#)

45. which of the following is gem-dihalide ?

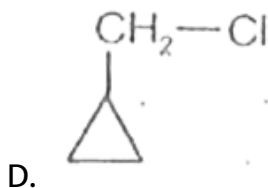
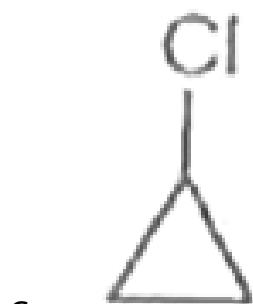
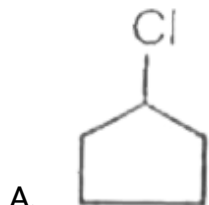


Answer: A

 [Watch Video Solution](#)

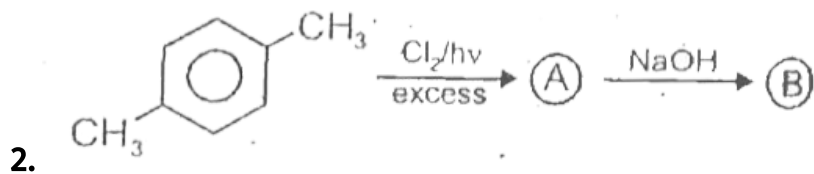
ASSIGNMENT SECTION - B

1. Which of the following is least reactive towards S_N2 mechanism ?



Answer: C

 Watch Video Solution

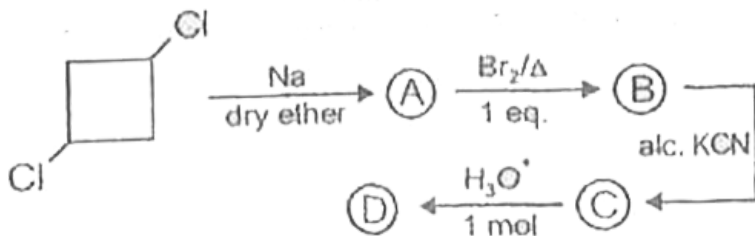


How many moles of CH_3OH required to react completely with (B) ?

- A. One
- B. two
- C. three
- D. four

Answer: B

 Watch Video Solution



3.

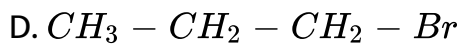
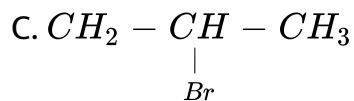
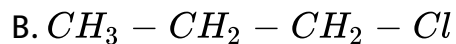
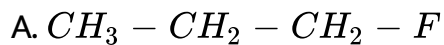
Product (D) in the reaction is

- A. Optically active cyanide
- B. optically inactive acid
- C. Optically active acid
- D. optically active aldehyde

Answer: B

 [Watch Video Solution](#)

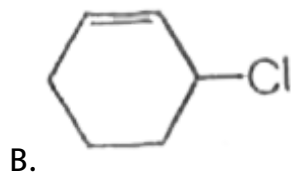
4. Which of the following is the least volatile?

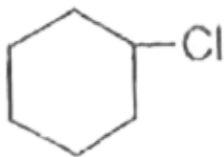


Answer: D

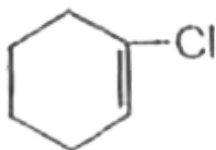
 **Watch Video Solution**

5. Which of the following will be readily soluble in water ?





C.



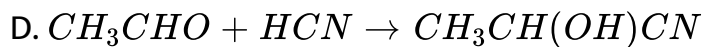
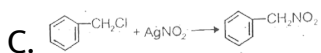
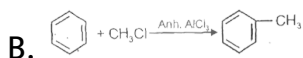
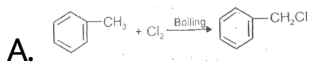
D.

Answer: B

 **Watch Video Solution**

6. Which one of the following is a free - radical substitution reaction

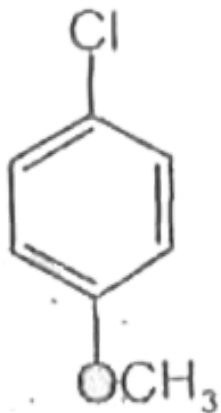
?



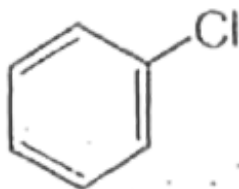
Answer: A

 Watch Video Solution

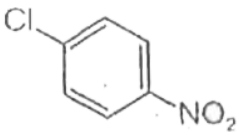
7. Which of the following compounds undergoes nucleophilic substitution reaction most easily?



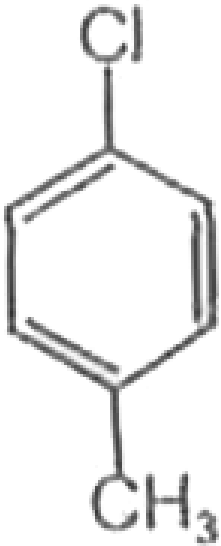
A.



B.



C.



D.

Answer: C

[Watch Video Solution](#)

8. Replacement of *Cl* of chlorobenzene to give phenol require drastic conditions but chlorine of 2,4-dinitrochlorobenzene is readily replaced because .

- A. NO_2 donates e^- at meta position
- B. NO_2 withdraws e^- from ortho/para positions
- C. NO_2 make ring electron rich at ortho & para
- D. NO_2 withdraws e^- from meta position

Answer: B

 [Watch Video Solution](#)

9. Chloropicrin is obtained by the reaction of

- A. Steam on carbon tetrachloride
- B. Nitric acid on chlorobenzene
- C. Chlorine on picric acid
- D. Nitric acid on chloroform

Answer: D

 [Watch Video Solution](#)

10. The reaction of toluene with Cl_2 in presence of $FeCl_3$ gives X and reaction in presence of light gives Y Thus X and Y are .

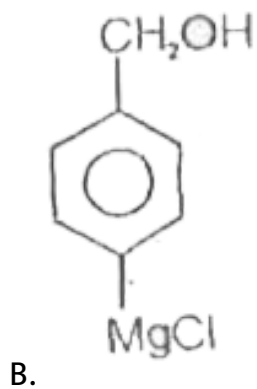
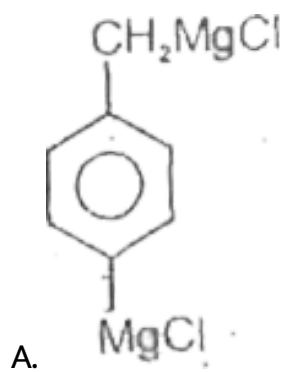
- A. X = Benzyl chloride , Y = m-chlorotoluene
- B. X = benzal chloride , Y = o-chlorotoluene
- C. X = m-chlorotoluene, Y = p-chlorotoluene
- D. X = o-and p-chlorotoluene, Y = Trichloromethyl benzene

Answer: D

 [Watch Video Solution](#)

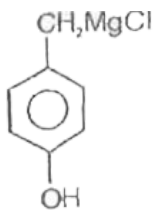
11. 

What is B ?





C.



D.

Answer: D

 [View Text Solution](#)

12. Ethylidene chloride on treatment with aq. KOH gives

A. Acetaldehyde

B. Ethylene glycol

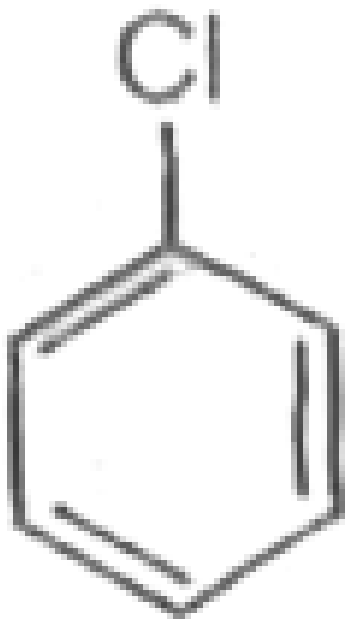
C. Ethyl alcohol

D. Acetic acid

Answer: A

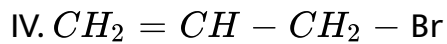
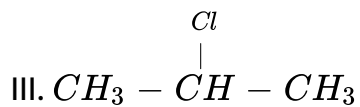
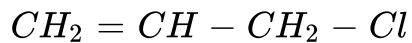
 [Watch Video Solution](#)

13. The correct order of reactivity of the following compounds towards aqueous NaCN will be



I

II.



A. I > II > III > IV

B. I > IV > II > III

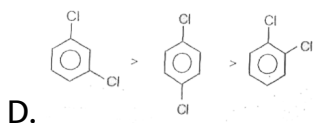
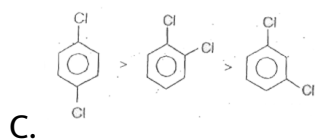
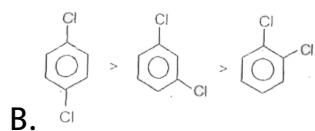
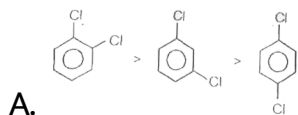
C. IV > II > I > III

D. IV > II > III > I

Answer: D

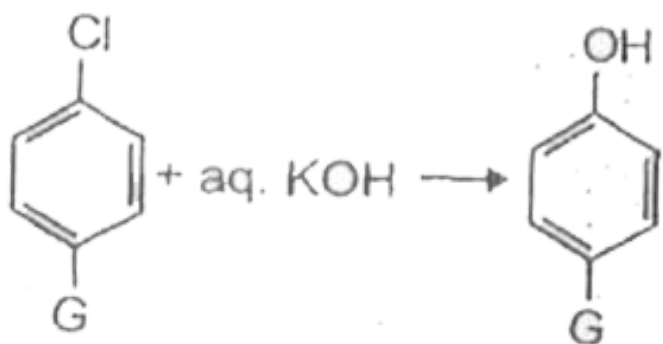
 View Text Solution

14. Which among the following is the correct order of melting point ?



Answer: C

 Watch Video Solution



15.

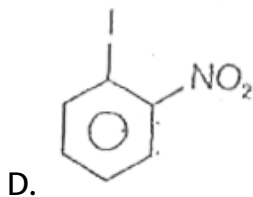
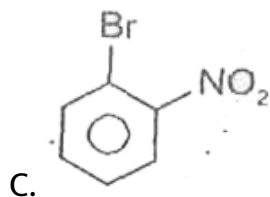
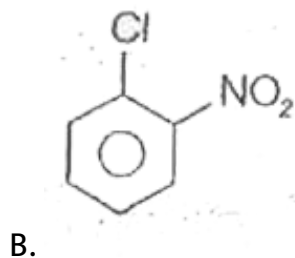
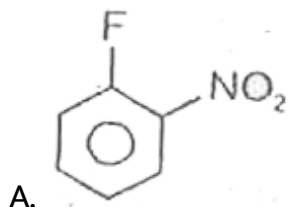
For which of the following G, above reaction will be the fastest ?

- A. $-OH$
- B. $-CH_3$
- C. $-NO_2$
- D. $-CHO$

Answer: C

 [Watch Video Solution](#)

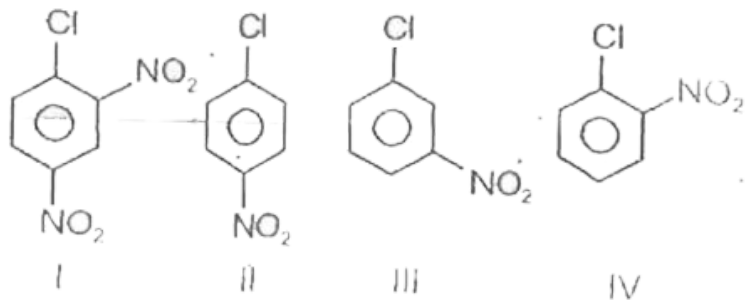
16. Which of the following is least reactive towards nucleophilic substitution?



Answer: D

 Watch Video Solution

17. Among the following



The correct order of reactivity towards ArS_N mechanism is

A. I > III > II > IV

B. I > II > IV > III

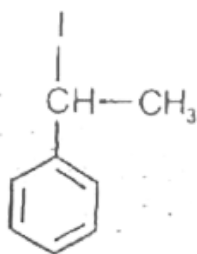
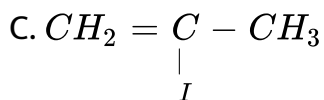
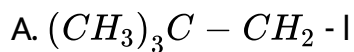
C. III > II > IV > I

D. I > IV > II > III

Answer: D

 [Watch Video Solution](#)

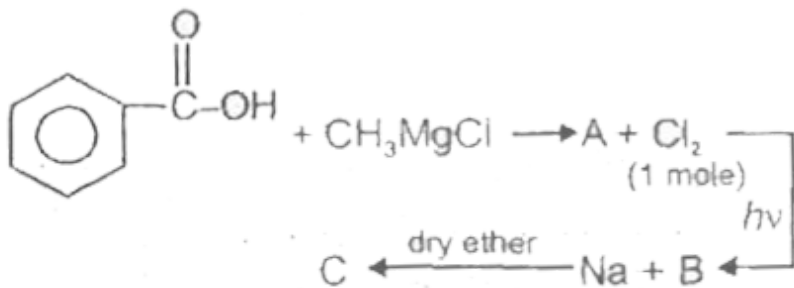
18. Which of the following does not give yellow precipitate with AgNO_3 ?



D.

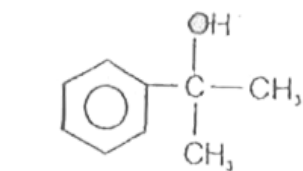
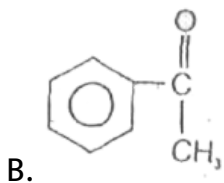
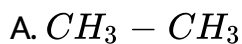
Answer: C

 Watch Video Solution

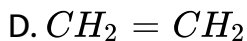


19.

What is C ?

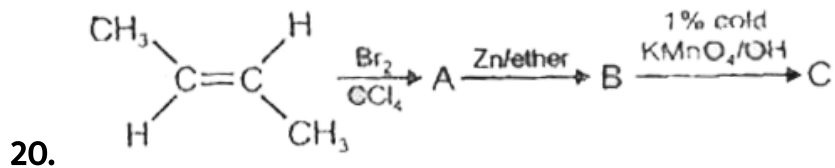


C.

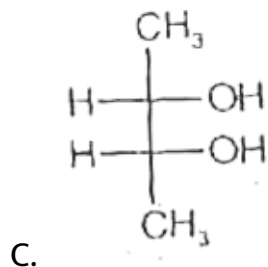
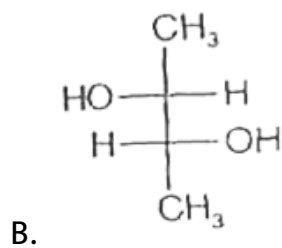
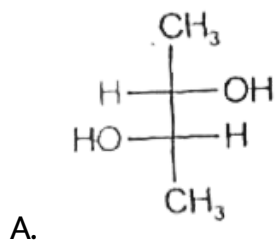


Answer: A

Watch Video Solution



The product (C) is

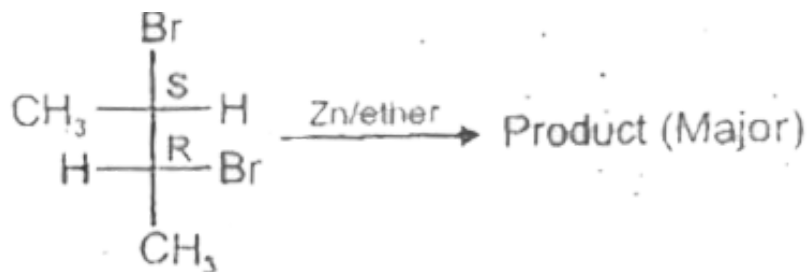


D. Mixture of (1) & (2)

Answer: D

 Watch Video Solution

21. In the given reaction

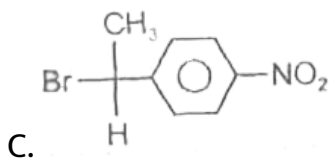
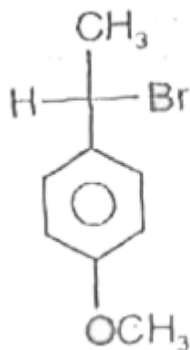
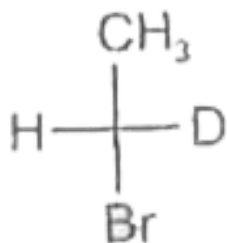


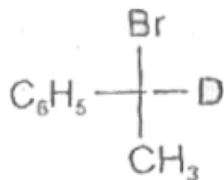
The product will be

- A. Cis-2-butene
- B. Trans-2-butene
- C. 2-butyne
- D. Buta-1, 3-diene

Answer: B

22. Under identical conditions, solvolysis of which of the following substrate would lead to maximum racemisation?



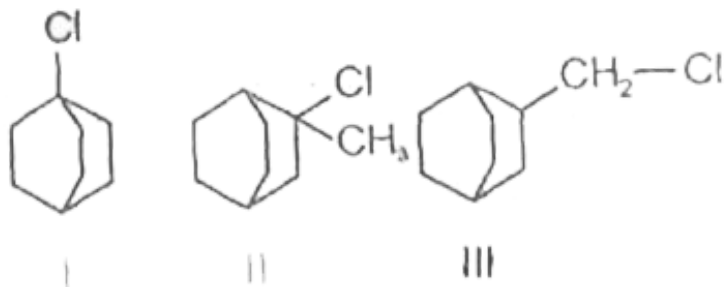


D.

Answer: B

 Watch Video Solution

23. The correct order of reactivity towards S_N1 reaction is



A. $I > II > III$

B. $II > III > I$

C. $III > II > I$

D. $I > III > II$

Answer: B

 [Watch Video Solution](#)

24. When cis-but-2-ene is treated with Br_2 in CCl_4 medium the product formed will be

A. (2R, 3S) dibromobutane

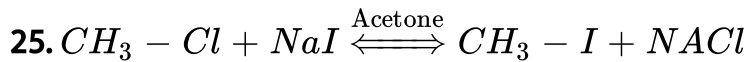
B. (2R, 3R) dibromobutane

C. (2S, 3S) dibromobutane

D. Mixture of (2R, 3R) and (2S, 3S) dibromobutane

Answer: D

 [Watch Video Solution](#)



Above equilibrium is more towards right because

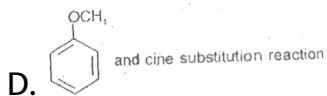
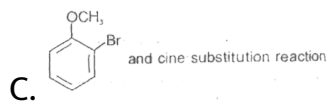
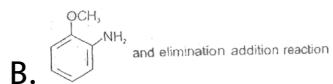
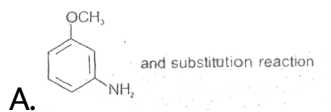
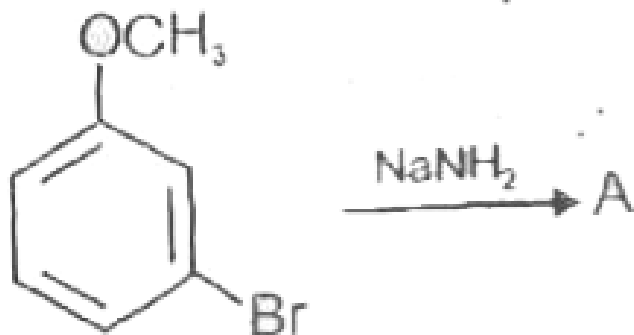
- A. NaI's more reaction than NaCl
- B. CH_3 is more reactive than CH_3Cl
- C. NaCl is less soluble than NaI in acetone
- D. It is Finkelstein's reaction

Answer: C

 [Watch Video Solution](#)

ASSIGNMENT SECTION - C

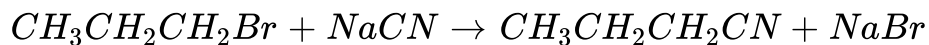
1. Identify A and predict the type of reaction



Answer: A

 **Watch Video Solution**

2. Consider the reaction :



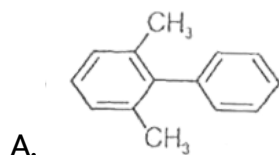
This reaction will be the fastest in :

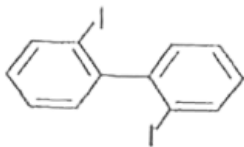
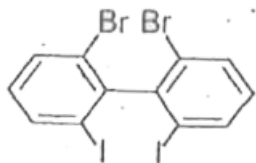
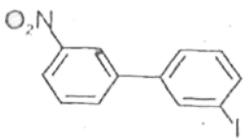
- A. Ethanol
- B. Methanol
- C. N, N'-dimethylformamide (DMF)
- D. Water

Answer: C

 [Watch Video Solution](#)

3. Which of the following biphenyls is optically active?





Answer: C

 [Watch Video Solution](#)

4. Two possible stereostructures of $CH_3CHOH.COOH$, which are optically active, are called:

A. Enantiomers

B. Mesomers

C. Diastereomers

D. Atropisomers

Answer: A

 [Watch Video Solution](#)

5. In an S_N1 reaction on chiral centres, there is

A. 100% retention

B. 100% inversion

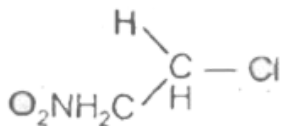
C. 100 % racemization

D. Inversion more than retention leading to partial racemization

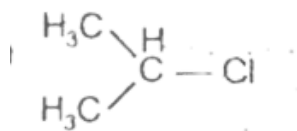
Answer: D

 [Watch Video Solution](#)

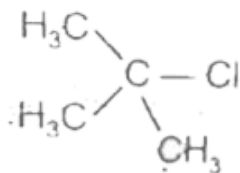
6. In which of the following compounds, the C - Cl bond ionisation shall give most stable carbonium ion ?



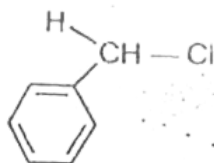
A.



B.



C.

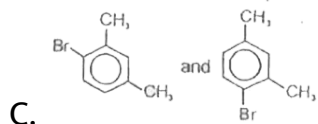
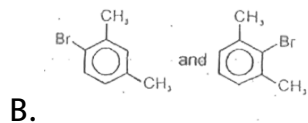
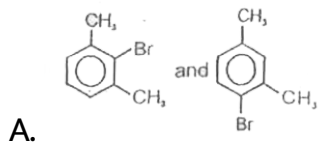
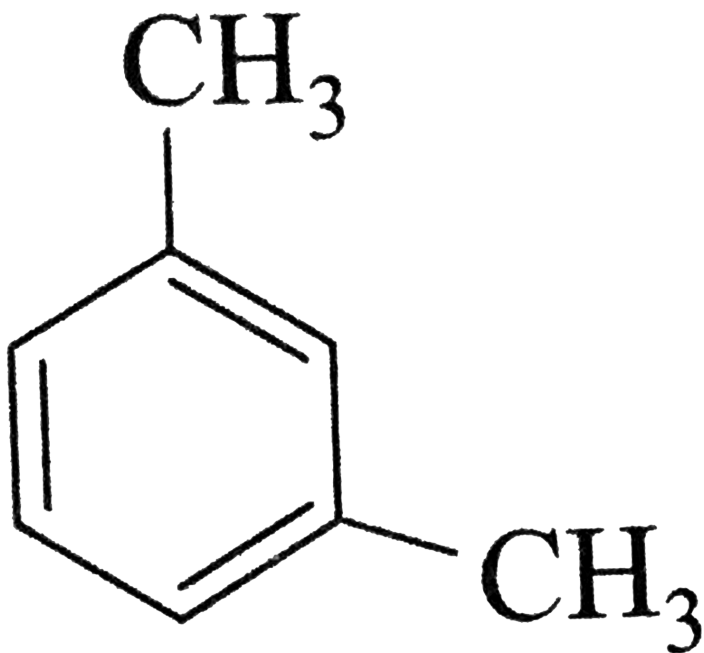


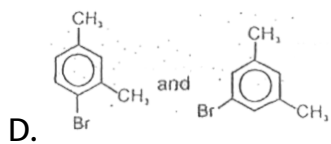
D.

Answer: C

 Watch Video Solution

7. What products are formed when the following compounds are treated with Br_2 in the presence of $FeBr_3$?





Answer: C

 [Watch Video Solution](#)

8. Which of the following compounds will undergo racemisation when solution of KOH hydrolyses ?



A. (i) and (ii)

B. (ii) and (iv)

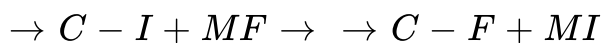
C. (iii) and (iv)

D. (i) and (iv)

Answer: D

 [View Text Solution](#)

9. In the replacement reaction



The reaction will be most favourable if M happens to be

A. Na

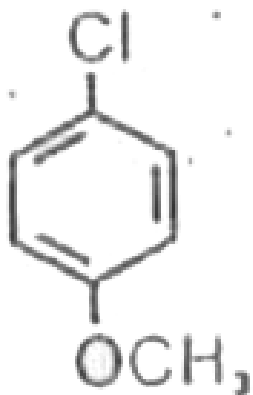
B. K

C. Rb

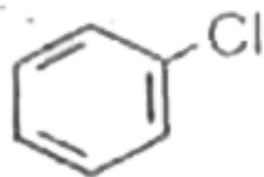
D. Li

Answer: C

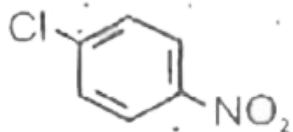
10. Which of the following compounds undergoes nucleophilic substitution reaction most easily?



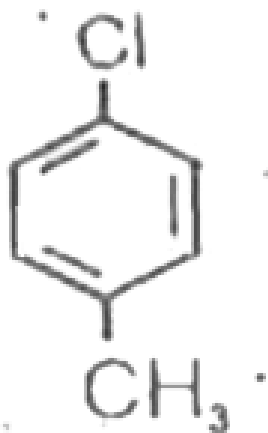
A.



B.



C.



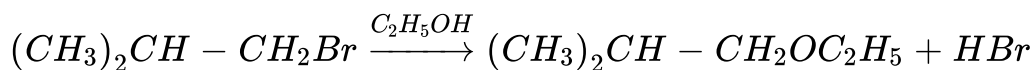
D.

Answer: C

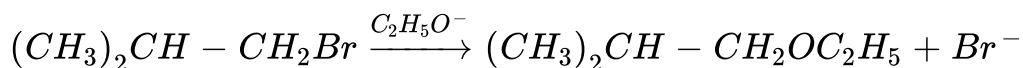
 Watch Video Solution

11. Consider the reactions,

(i)



(ii)



The mechanism of reactions (i) and (ii) are respectively :

A. S_N2 and S_N2

B. S_N2 and S_N1

C. S_N1 and S_N2

D. S_N1 and S_N1

Answer: A

 [Watch Video Solution](#)

12. Which one is most reactive towards S_N1 reactions ?

A. $C_6H_5CH(C_6H_5)Br$

B. $C_6H_5CH(CH_3)Br$

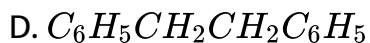
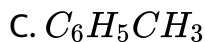
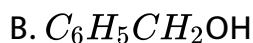
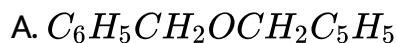
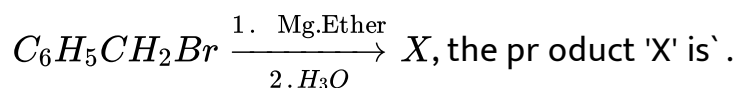
C. $C_6H_5C(CH_3)(C_6H_5)Br$

D. $C_6H_5CH_2Br$

Answer: C

 Watch Video Solution

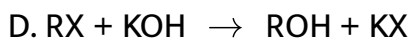
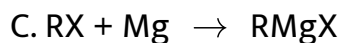
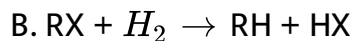
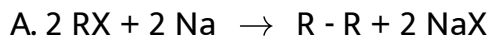
13. In the following reaction



Answer: C

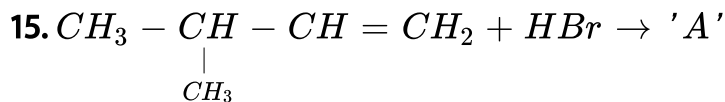
 Watch Video Solution

14. Which of the following reactions is an example of nucleophilic substitution reaction?

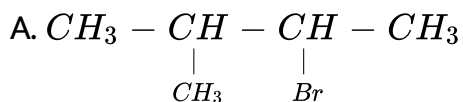


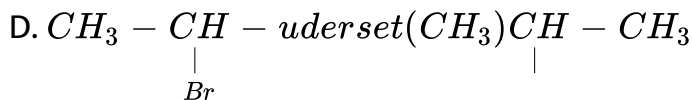
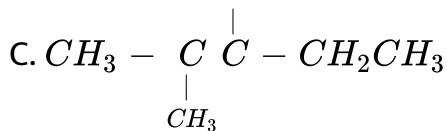
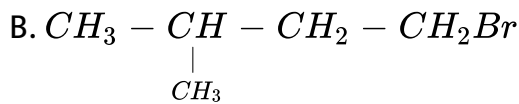
Answer: D

 Watch Video Solution



'A' (predominantly) is:





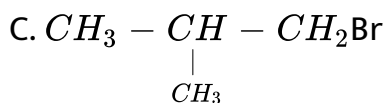
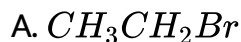
Answer: C

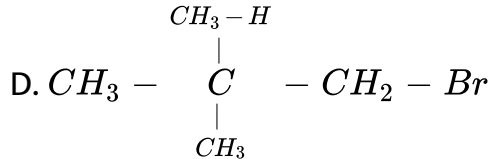
 Watch Video Solution

16. In a S_N2 substitution reaction of the type



Which one of the following has the highest relative rate?





Answer: A

 [Watch Video Solution](#)

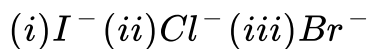
17. If there is no rotation of plane polarized light by a compound in a specific solvent, thought to be chiral, it means that:

- A. The compound may be a racemic mixture
- B. The compound is certainly a chiral
- C. the compound is certainly meso
- D. There is no compound in the solvent

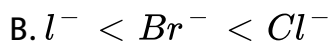
Answer: C

 [Watch Video Solution](#)

18. For the following



the increasing order of nucleophilicity would be:



Answer: C



Watch Video Solution

19. Which of the following undergoes nucleophilic substitution exclusively by S_N1 mechanism?

A. Benzyl chloride

B. Ethyl chloride

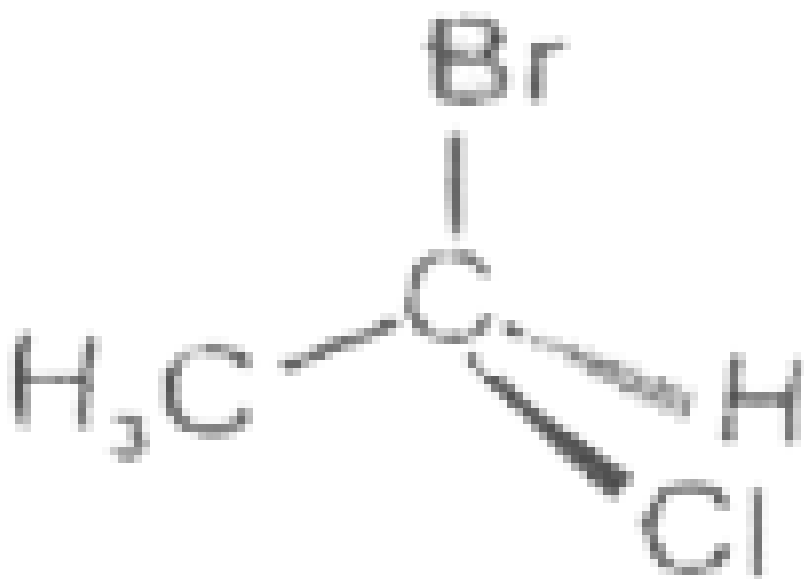
C. Chlorobenzene

D. Isopropyl chloride

Answer: A

 [Watch Video Solution](#)

20. The chirality of the compound



A. R

B. S

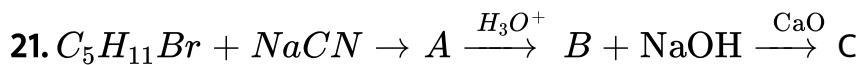
C. Z

D. E

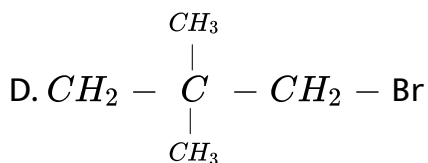
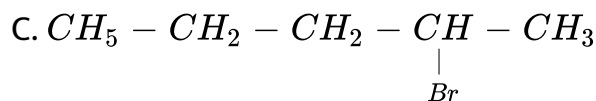
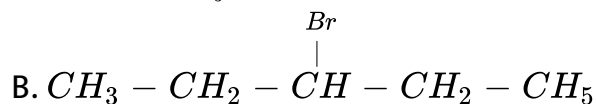
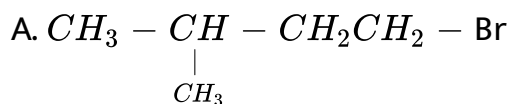
Answer: A



View Text Solution



C' has the formula C_5H_{12} which can give four structural isomeric monochloro derivative . What is the structure of $C_5H_{11}Br$?



Answer: A

 Watch Video Solution

22. $CD_2 = CH - CH_2 - Br$ is subjected to S_N1 and S_N2 reactions separately, which of the following statement is correct ?

- A. both S_N1 and S_N2 give two products
- B. Both S_N1 and S_N2 give only product
- C. S_N1 gives two products but S_N2 gives only one product
- D. S_N1 gives one product but S_N2 gives two products

Answer: C

 [Watch Video Solution](#)

23. In Finkelstein reaction when acetone is replaced by water then

- A. Reaction occurs in forward direction via S_N1 pathway
- B. Reaction occurs in forward direction via S_N2 pathway

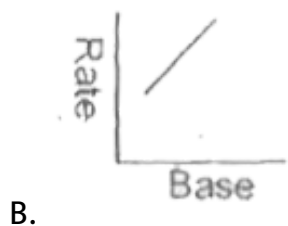
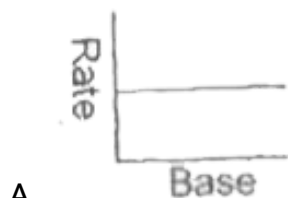
C. Reaction occurs in backward because NaCl formed in right hand side is soluble in water and cannot ppt. out

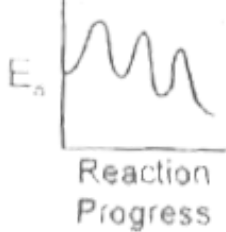
D. Reaction is not possible

Answer: C

 [Watch Video Solution](#)

24. Which graph is incorrect ?





C.

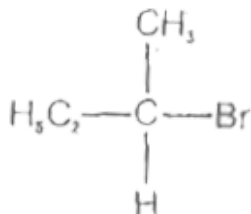


D.

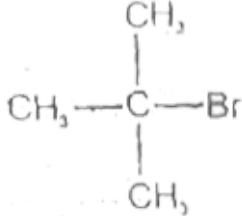
Answer: C

 [View Text Solution](#)

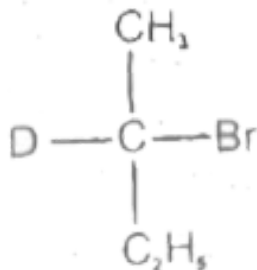
25. Which will undergo fastest S_N2 substitution reaction when treated with NaOH ?



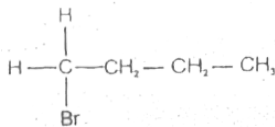
A.



B.



C.

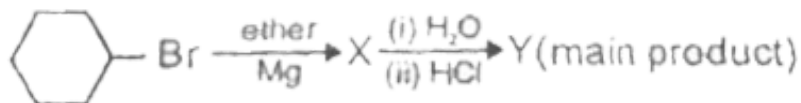


D.

Answer: D

 Watch Video Solution

26. Given reaction



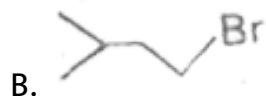
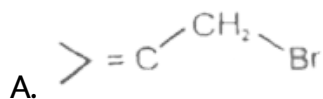
Y in the reaction is

- A. Hexane
- B. Cyclohexane
- C. Cyclohexylcyclohexane
- D. Cyclohexylether

Answer: B

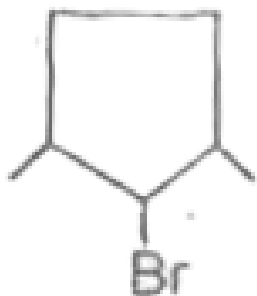
 [Watch Video Solution](#)

27. Which one of the following alkyl bromides undergoes most rapid solvolysis in methanol solution to give corresponding methyl ether?





C.



D.

Answer: A

 [Watch Video Solution](#)

28. Monobromination of 2-methylbutane gives how many distinct isomers ?

A. One

B. Two

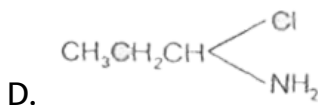
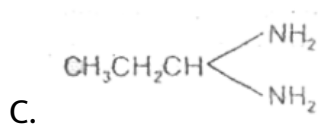
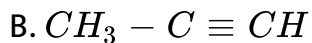
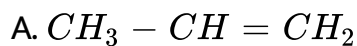
C. three

D. four

Answer: D

 [View Text Solution](#)

29. When $CH_3CH_2CHCl_2$ is treated with $NaNH_2$ the product formed is:



Answer: B



[Watch Video Solution](#)

30. Grignard reagent is prepared by the reaction between:

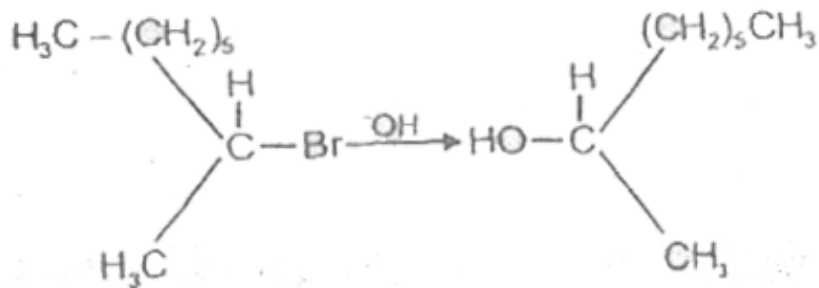
- A. Magnesium and alkane
- B. Magnesium and aromatic hydrocarbon
- C. Zinc and alkyl halide
- D. Magnesium and alkyl halide

Answer: D



[Watch Video Solution](#)

31. The following reaction is described as



A. S_N2

B. S_N0

C. S_E2

D. S_N1

Answer: A



View Text Solution

32. 2-bromopentane is heated with potassium ethoxide in ethanol

The major product obtained is .

A. trans-pentene - 2

B. Pentene-1

C. 2-ethoxypentane

D. cis-pentene-2

Answer: A

 [Watch Video Solution](#)

33. Which of the following compounds is not chiral ?

A. CH_3CHDCH_2Cl

B. CH_3CH_2CHDCl



Answer: C

 **Watch Video Solution**

34. An organic compound $A(C_4H_9Cl)$ on the reaction with Na/diethyl ether gives a hydrocarbon which on monochlorination gives only one chloro derivative then, A is

A. t-butyl chloride

B. Secondary butyl chloride

C. Isobutyl chloride

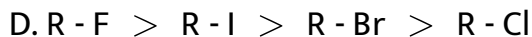
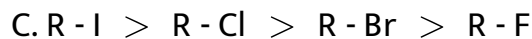
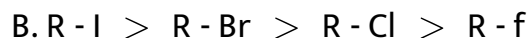
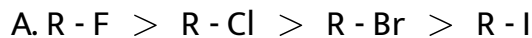
D. n-butyl chloride

Answer: A



[View Text Solution](#)

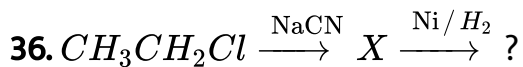
35. Reactivity order of halides of dehydrohalogenation is



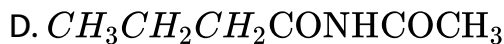
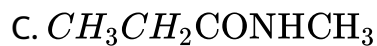
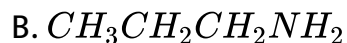
Answer: B



[Watch Video Solution](#)



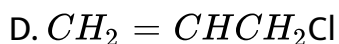
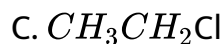
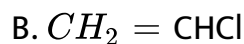
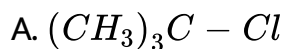
Y in the above reacting sequence is



Answer: B

 [Watch Video Solution](#)

37. Which of the following is least reactive in a nucleophilic substitution reaction?



Answer: B

 [Watch Video Solution](#)

38. Which of the following is not chiral?

A. 2-hydroxypropanoic acid

B. 2-butanol

C. 2,3-dibromopentane

D. 3-bromopentane

Answer: D

 [Watch Video Solution](#)

1. In the following questions, a statement of assertion (A) is following by a statement of reason (R)

A : when chloroform is obtained from bleaching powder and ethanol then chlorine acts as oxidising agent only.

R : It oxidises ethanol into acetic acid.

A. If both Assertion & Reason are the reason is the correct explanation of the assertion, then mark (1).

B. If both Assertion & Reason are true but the reason is not the correct explanation of the assertion, then mark(2).

C. If Assertion is true statement but Reason is false , then mark (3)

D. If both Assertion and Reason are false statements, then mark (4)

Answer: D



2. In the following questions, a statement of assertion (A) is following by a statement of reason (R)

A: Dow's process is an example of nucleophilic substitution reaction.

R : In this process, benzyne is formed as an intermediate.

A. If both Assertion & Reason are true and the reason is the correct explanation of the assertion, then mark (1).

B. If both Assertion & Reason are true but the reason is not the correct explanation of the assertion, then mark(2).

C. If Assertion is true statement but Reason is false , then mark (3)

D. If both Assertion and Reason are false statements, then mark (4)

Answer: B

 **Watch Video Solution**

3. In the following questions, a statement of assertion (A) is following by a statement of reason (R)

A : In presence of DMSO Solvent, the rate of S_N2 reaction inceases.

R : DMSO is a polar protic solvent .

A. If both Assertion & Reason are the reason is the correct explanation of the assertion, then mark (1).

B. If both Assertion & Reason are true but the reason is not the correct explanation of the assertion, then mark(2).

C. If Assertion is true statement but Reason is false , then mark (3)

D. If both Assertion and Reason are false statements, then mark

(4)

Answer: C

 [Watch Video Solution](#)

4. In the following questions, a statement of assertion (A) is following by a statement of reason (R)

A : when alkyl halide is reacted with AgCN then alkyl isocyanide is formed .

R : AgCN is a covalent compound and only the site of nitrogen is available for the reaction.

A. If both Assertion & Reason are the reason is the correct explanation of the assertion, then mark (1).

B. If both Assertion & Reason are true but the reason is not the correct explanation of the assertion, then mark(2).

C. If Assertion is true statement but Reason is false , then mark (3)

D. If both Assertion and Reason are false statements, then mark (4)

Answer: A

 [Watch Video Solution](#)

5. In the following questions, a statement of assertion (A) is following by a statement of reason (R)

A : In Hunsdiecker reaction, alkyl chloride is formed poor yield.

R : in this reaction , carbanion is formed as an intermediate.

- A. If both Assertion & Reason are the reason is the correct explanation of the assertion, then mark (1).
- B. If both Assertion & Reason are true but the reason is not the correct explanation of the assertion, then mark(2).
- C. If Assertion is true statement but Reason is false , then mark (3)
- D. If both Assertion and Reason are false statements, then mark (4)

Answer: C



Watch Video Solution

6. In the following questions, a statement of assertion (A) is following by a statement of reason (R)

A : Ethylidene chloride on alkaline hydrolysis gives acetaldehyde.

R: Two chlorine atoms attached with adjacent carbon atom in ethylidene chloride .

A. If both Assertion & Reason are true and the reason is the correct explanation of the assertion, then mark (1).

B. If both Assertion & Reason are true but the reason is not the correct explanation of the assertion, then mark(2).

C. If Assertion is true statement but Reason is false , then mark (3)

D. If both Assertion and Reason are false statements, then mark (4)

Answer: C

 [Watch Video Solution](#)

7. In the following questions, a statement of assertion (A) is following by a statement of reason (R)

A : primary alkyl halides on oxidation with DMSO gives aldehydes.

R : DMSO is used as polar aprotic solvent .

A. If both Assertion & Reason are the reason is the correct explanation of the assertion, then mark (1).

B. If both Assertion & Reason are true but the reason is not the correct explanation of the assertion, then mark(2).

C. If Assertion is true statement but Reason is false , then mark (3)

D. If both Assertion and Reason are false statements, then mark (4)

Answer: B



Watch Video Solution

8. In the following questions, a statement of assertion (A) is following by a statement of reason (R)

A : Haloalkanes react with KCN to give alkyl cyanide as the main product while with AgCN they form isocyanide as the main product.

R: In KCN, k form ionic bond due to which one lone pair present on carbon, so carbon act as donor but in AgCN, Ag form covalent bond and carbon has no lone pair so N-atom act as donor.

A. If both Assertion & Reason are the reason is the correct explanation of the assertion, then mark (1).

B. If both Assertion & Reason are true but the reason is not the correct explanation of the assertion, then mark(2).

C. If Assertion is true statement but Reason is false , then mark (3)

D. If both Assertion and Reason are false statements, then mark

(4)

Answer: A

 [Watch Video Solution](#)

9. In the following questions, a statement of assertion (A) is following by a statement of reason (R)

A: In benzyne the hybridisation of triply bonded carbon is SP^2 .

R: The second π -bond is formed by sp^2 hybrid orbital .

A. If both Assertion & Reason are the reason is the correct explanation of the assertion, then mark (1).

B. If both Assertion & Reason are true but the reason is not the correct explanation of the assertion, then mark(2).

C. If Assertion is true statement but Reason is false , then mark

(3)

D. If both Assertion and Reason are false statements, then mark

(4)

Answer: A

 [Watch Video Solution](#)

10. In the following questions, a statement of assertion (A) is following by a statement of reason (R)

A: Halogen is deactivating group due to -I effect.

R: Halogen is ortho -para directing due to +M effect .

A. If both Assertion & Reason are the reason is the correct explanation of the assertion, then mark (1).

B. If both Assertion & Reason are true but the reason is not the correct explanation of the assertion, then mark(2).

C. If Assertion is true statement but Reason is false , then mark (3)

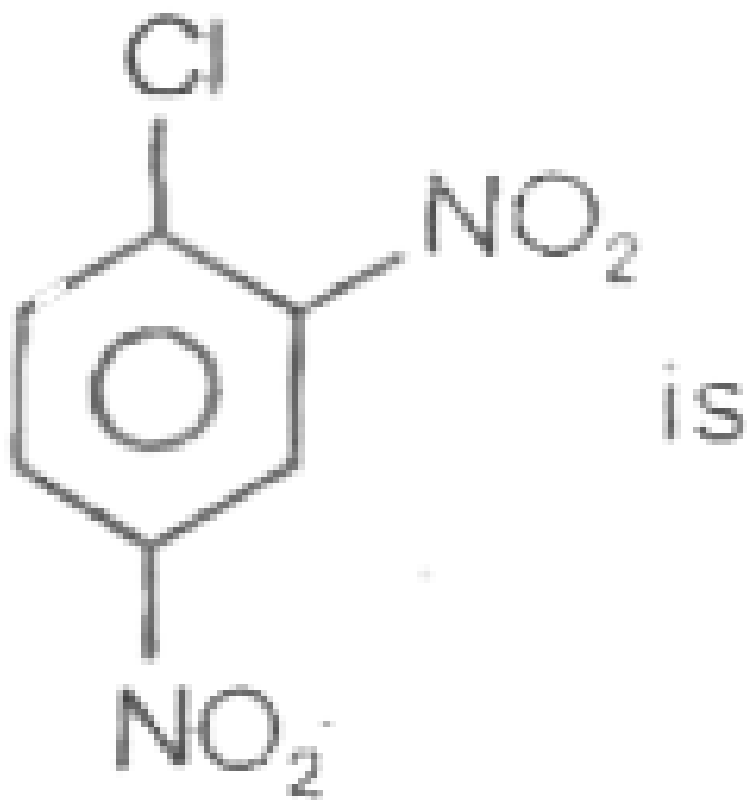
D. If both Assertion and Reason are false statements, then mark (4)

Answer: B



[Watch Video Solution](#)

11. In the following questions, a statement of assertion (A) is following by a statement of reason (R)



is more reactive towards nucleophilic substitution reaction than



R: NO_2 group is electron withdrawing so decreases the double bond of C-Cl bond .

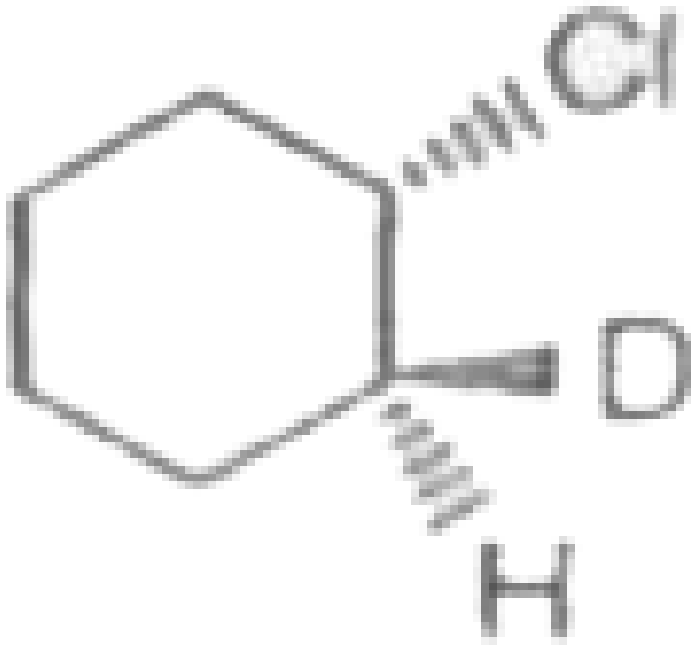
- A. If both Assertion & Reason are the reason is the correct explanation of the assertion, then mark (1).
- B. If both Assertion & Reason are true but the reason is not the correct explanation of the assertion, then mark(2).
- C. If Assertion is true statement but Reason is false , then mark (3)
- D. If both Assertion and Reason are false statements, then mark (4)

Answer: C



Watch Video Solution

12. In the following questions, a statement of assertion (A) is following by a statement of reason (R)



1

with alcoholic KOH on reaction gives



R: Bond energy of C-D bond is less than of C-H bond.

A. If both Assertion & Reason are true and the reason is the correct explanation of the assertion, then mark (1).

B. If both Assertion & Reason are true but the reason is not the correct explanation of the assertion, then mark(2).

C. If Assertion is true statement but Reason is false , then mark

(3)

D. If both Assertion and Reason are false statements, then mark

(4)

Answer: C

 [Watch Video Solution](#)

13. In the following questions, a statement of assertion (A) is following by a statement of reason (R)

A : Meso -2, 3 - dibromobutane on reaction with Zn/ether gives trans but -2 ene .

R : Zn/ether gives anti elimination .

- A. If both Assertion & Reason are the reason is the correct explanation of the assertion, then mark (1).
- B. If both Assertion & Reason are true but the reason is not the correct explanation of the assertion, then mark(2).
- C. If Assertion is true statement but Reason is false , then mark (3)
- D. If both Assertion and Reason are false statements, then mark (4)

Answer: A



Watch Video Solution

14. In the following questions, a statement of assertion (A) is following by a statement of reason (R)

A : The number of optically active isomers of tartaric acid contains two asymmetric carbon .

A. If both Assertion & Reason are true and the reason is the correct explanation of the assertion, then mark (1).

B. If both Assertion & Reason are true but the reason is not the correct explanation of the assertion, then mark(2).

C. If Assertion is true statement but Reason is false , then mark (3)

D. If both Assertion and Reason are false statements, then mark (4)

Answer: B



Watch Video Solution

15. In the following questions, a statement of assertion (A) is following by a statement of reason (R)

A : Chlorobenzene on reaction with sodium metal in the presence of dry ether gives diphenyl.

R: This reaction is called Ullmann reaction.

A. If both Assertion & Reason are the reason is the correct explanation of the assertion, then mark (1).

B. If both Assertion & Reason are true but the reason is not the correct explanation of the assertion, then mark(2).

C. If Assertion is true statement but Reason is false , then mark (3)

D. If both Assertion and Reason are false statements, then mark (4)

Answer: C



Watch Video Solution