

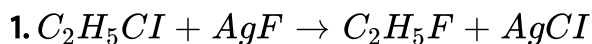


CHEMISTRY

BOOKS - A2Z CHEMISTRY (HINGLISH)

ORGANIC COMPOUNDS CONTAINING HALOGENS

Methods Of Preparation of Haloalkanes



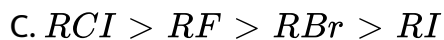
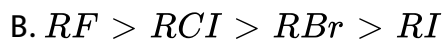
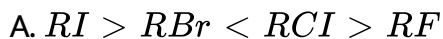
The above reaction is called .

- A. Hunsdiecker
- B. Swart
- C. Strecker
- D. Wurtz

Answer: B

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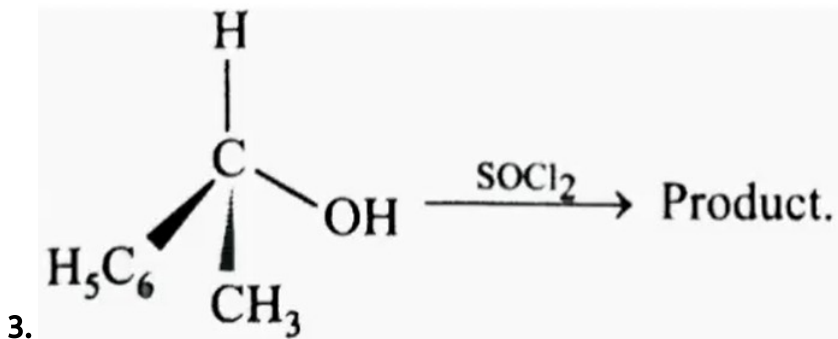
2. The correct order of dipole moment of alkyl halides is .



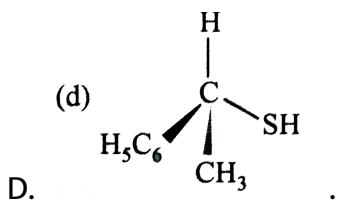
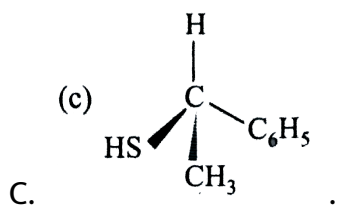
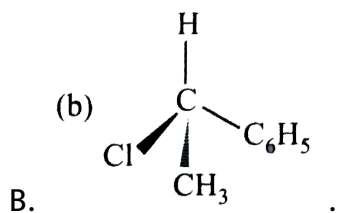
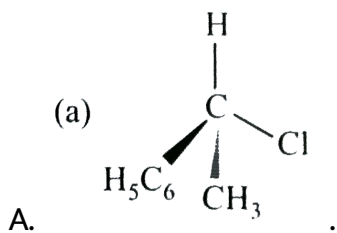
D. None of these

Answer: C

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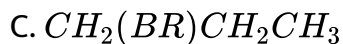
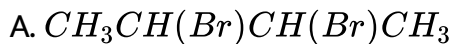
identify the product



Answer: A

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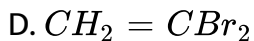
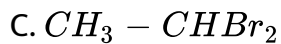
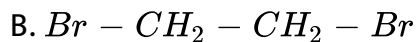
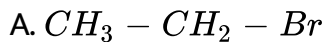
4. Gem - dibromide is



Answer: B

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5. Ethylidene dibromide is



Answer: C

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6. Which of the following halide is 2° .

A. Isopropyl chloride

B. Isobutyl chloride

C. n-propyl chloride

D. n-butyl chloride

Answer: A

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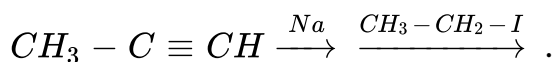
7. Benzene hexachloride is

- A. 1,2,3,4,5,6-hexachlorocyclohexane
- B. 1,2,3,4,5,6-hexachlorocyclohexene
- C. 1,6-phenyl-1,6-chlorohexane
- D. 1,1-phenyl-6,6-chlorohexane

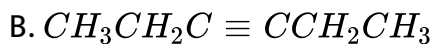
Answer: A

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8. What is the final product of reaction



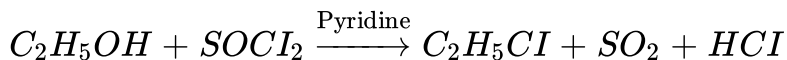
- A. $CH_2 = CHCH_2CH_3$



Answer: D

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9. The following reaction is known as



- A. Kharasch effect
- B. Darzens process
- C. Williamson s synthesis
- D. Hunsdiecker synthesis reaction

Answer: B

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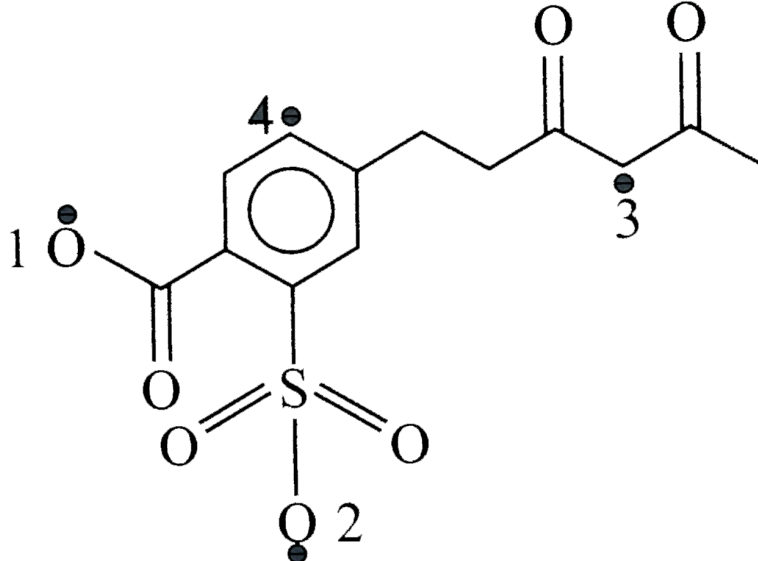
10. What is the main product of the reaction between 2-methyl propene with HBr ?

- A. 1-bromo butane
- B. 1-bromo-2 methyl propane
- C. 2-bromo butane
- D. 2-bromo-2 methyl propane

Answer: D

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11. Which one is the strongest nucleophilic site in the following species ?



A. 1

B. 2

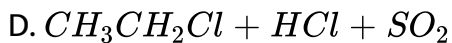
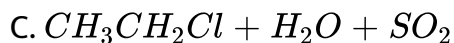
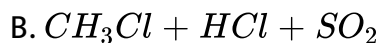
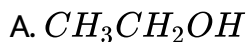
C. 3

D. 4

Answer: D

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12. When ethyl alcohol (C_2H_5OH) reacts with thionyl chloride in the presence of pyridine the product obtained is .



Answer: D



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13. preparation of alkyl halides in laboratory is best preferred by .

A. Treatment of alcohols

B. Addition of hydrogen halides to alkenes .

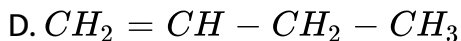
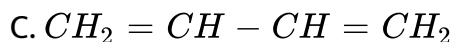
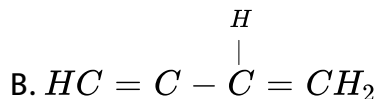
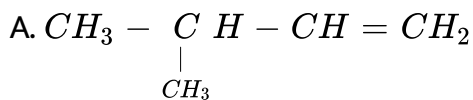
C. Halide exchange

D. Direct halogenation of alkanes .

Answer: B

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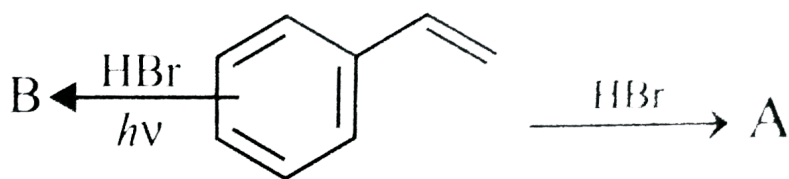
14. Which of the following organic compounds will give a mixture of 1-chlorobutane and 2-chlorobutane on chlorination



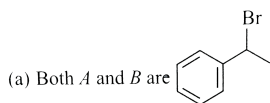
Answer: D

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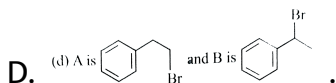
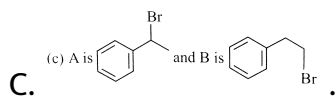
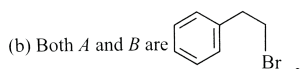
15. Analyze the following reaction and identify the nature of *A* and *B*



A. Both *A* and *B* are



B. Both *A* and *B* are

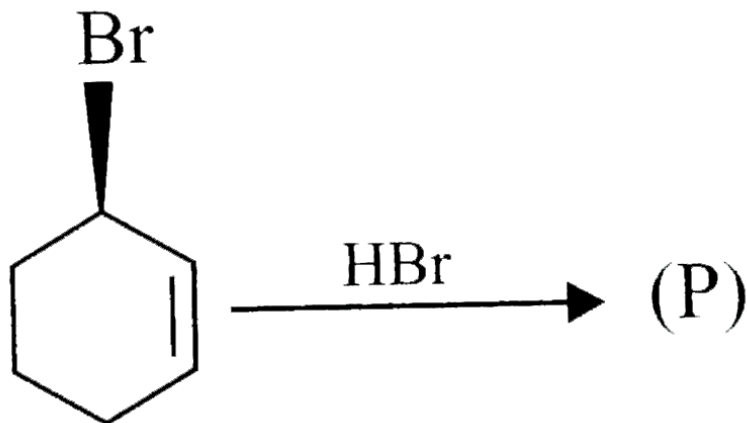


Answer: C

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16. The reaction shown below goes through classical carbocation

What is the major product of this reaction

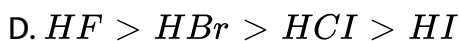
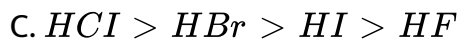
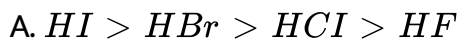
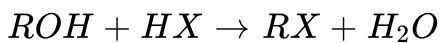


- A. trans-1,3-dibromocyclohexane
- B. cise-1,3-dibromocyclohexane
- C. cise-1,2-dibromocyclohexane
- D. cise-1,2-dibromocyclohexane

Answer: A

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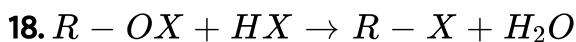
17. Decreasing order of reactivity of HX in the reaction



Answer: A



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In the above reaction the reactivity of different alcohols is

A. Tertiary > Secondary > Primary

B. Tertiary

C. Tertiary \gt Secondary \gt Primary

D. Secondary \gt Primary \lt Tertiary

Answer: A

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19. In the Hunsdiecker reaction .

A. Number of carbon atoms decrease

B. Number of carbon atoms increase

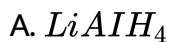
C. Number of carbon atoms remain same

D. none of the above

Answer: A

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20. The catalyst used in Raschig's process is



B. Copper chloride

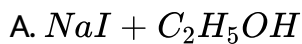
C. Sunlight

D. Ethanol/NA

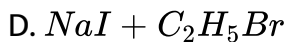
Answer: B

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21. In Finkelstein Reaction which reactants are used



B. $NaF + \text{acetone}$



Answer: D

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Identify A , B and C .

- A. Ethyl alcohol, Ethyl chloride and Ethane
- B. Ethane Ethyl chloride and Ethyl alcohol
- C. Propane Propyl chloride and Propyl alcohol
- D. All of the above

Answer: B

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23. Pick up the correct statement about alkyl halides

- A. They show H-bonding
- B. They are soluble in water
- C. They are soluble in organic solvent
- D. They do not contain any polar bond

Answer: C

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24. Racemic mixture is obtained due to the halogenation of

- A. isopentane
- B. n-pentane
- C. neopentane
- D. Both(a) and(b)

Answer: D



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25. The reaction of SOCl_2 on alkanols to form alkyl chlorides gives good yields because

- A. alkyl chlorides are immiscible with SOCl_2
- B. the reaction does not occur via intermediate formation of an alkyl chlorosulphite
- C. alcohol and SOCl_2 are soluble in water
- D. the other products of the reaction are gaseous and escape out

Answer: D



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26. How many chiral compounds are possible on monochlorination of 2-Methyl butane ?

A. 8

B. 2

C. 4

D. 6

Answer: B



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27. Which branched chain isomer of the hydrocarbon with molecular mass 72μ gives only one isomer of mono substituted alkyl halide ?

A. Tertiary butyl chloride

B. Neopentane

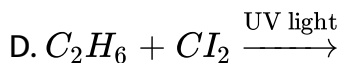
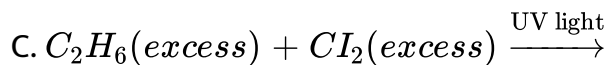
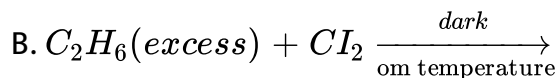
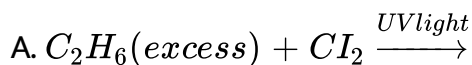
C. Isohexane

D. Neohexane

Answer: B

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28. The reaction conditions leading to the best yield of C_2H_5Cl are



Answer: A

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29. The number of structural and configurational isomers of a bromo compound, C_5H_9Br , formed by the addition of HBr to 2-pentyne respectively, is:

A. 1 and 2

B. 2 and 4

C. 4 and 2

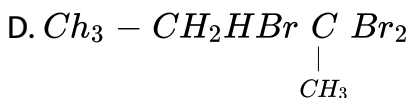
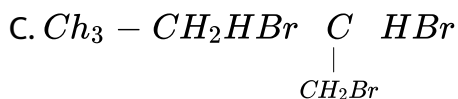
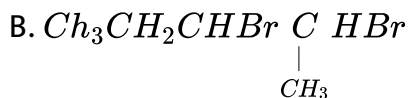
D. 2 and 1

Answer: A

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30. What is the chief product obtained when n – butane is treated with Br_2 in the presence of light at $130^\circ C$?

A. $CH_3CH_2CH_2CH_2Br$



Answer: B

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Physical Properties And Nucleophilic Substitution Reaction

1. For $\text{CH}_3\text{Br} + \text{OH}^- \rightarrow \text{CH}_3\text{OH} + \text{Br}^-$

the rate of reaction is given by the expression .

A. $\text{rate} = k[\text{CH}_3\text{Br}]^0$

B. $\text{rate} = k[\text{OH}^-]$

C. $\text{rate} = k[\text{CH}_3\text{Br}]$

$$D. \text{rate} = k[\text{CH}_3\text{Br}]^0[\text{OH}]^0$$

Answer: C

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2. What would be the product when neopentyl chloride reacts with sodium ethoxide

A. 2-Methyl-2butanol

B. Neopentylalcohol

C. both a and b

D. 2-Methyl-2-butene

Answer: D

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3. The rate law for the reaction



Rate = $k[RCl]$. The rate of the reaction will be

- A. Doubled on doubling the concentration of alkyl halide to half
- B. Halved on reducing the concentration of alkyl halide to half
- C. Decreased on increasing the temperature of the reaction
- D. Unaffected by increasing the temperature of the reaction .

Answer: B

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4. S_N1 reaction is favoured by

- A. Non-polar solvent
- B. More no of alkyl group on the carbonyl atom

C. Small groups on the carbon attached to the halogen atom

D. None of these

Answer: B

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5. When ethyl bromide is treated with moist Ag_2O main product is//are.

A. Ethyl ether

B. Ethanol

C. Ethoxy ethane

D. All of the above

Answer: D

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

- A. Diethyl amine
- B. Ethane Ethyl chloride and Ethyl alcohol
- C. Tetraethyl ammonium chloride
- D. Methyl amine

Answer: C

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7. The reactivity of ethyl chloride is

- A. More or less equal to that of benzyl chloride
- B. More than that of benzyl chloride
- C. More or less equal to that of chlorobenzene

D. Less than that of chlorobenzene

Answer: B

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8. The reactivities of methyl chloride, propyl chloride, and chlorobenzene are in the order

- A. Methylchloride > propyl chloride > chlorbenzene
- B. Propyl chloride > methyl chloride > chlorobenzene
- C. Methyl chloride > chlorobenzene > propyl chloride
- D. Chlorobenzene > propyl chloride > methyl chloride

Answer: A

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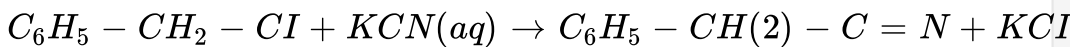
9. Reaction of *t* – *butyl* bromide with sodium methoxide produces

- A. Isobutane
- B. Isobutylene
- C. Sodium t-butoxide
- D. t- butyl menthylether

Answer: B

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10.



Compounds *X* and *Y* are .

- A. $C_6H_6 + KCl$
- B. $C_6H_5CH_2CN + KCl$



D. None of these

Answer: B

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11. Ethylidene chloride on treatment with aqueous KOH gives .

A. Ethylene glycol

B. Acetaldehyde

C. Formaldehyde

D. None

Answer: B

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12. $C_2H_5Cl + KCN \rightarrow X \xrightarrow{\text{Hydrolysis}} Y$. X' and Y are

- A. C_2H_6 and C_2H_5CN
- B. C_2H_5CN and C_2H_6
- C. C_2H_5CN and $C_2H_5CH_2NH_2$
- D. C_2H_5CN and C_2H_5COOH

Answer: D



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13. The set of compounds in which the reactivity of halogen atom in the ascending order is .

- A. Vinyl chloride ,chloroethane, chlorobenzene.
- B. Vinyl chloride, chlorobenzene,chloroethane,
- C. Chloroethane ,chlorobenzene, vinyl chloride

D. Chlorobenzene, vinyl chloride, chloroethane

Answer: D

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14. Vinyl chloride reacts with HCl to form

A. 1,1-dichloroethane

B. 1,2-dichloroethane

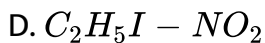
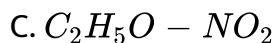
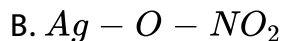
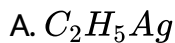
C. Tetrachloroethylene

D. Mixture of 1, 2 and 1,1 dichloroethane

Answer: A

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15. When ethyl iodide is heated with silver nitrate the product obtained is

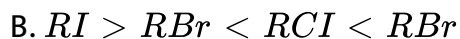


Answer: C



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16. For a given alkyl group the densities of the halides follow the order

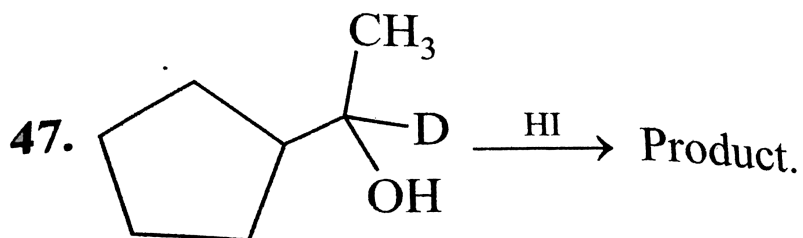


C. $RBr < RI < RCI$

D. $RCI < RBr < RI$

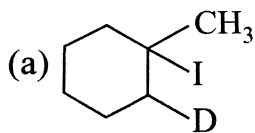
Answer: D

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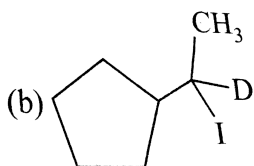


17.

Identify the major product

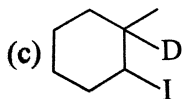


A.

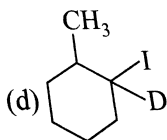


B.

C.



D.



Answer: A

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18. HEATING ALKYL HALIDES WITH DRY SILVER OXIDE

A. Ester

B. Ether

C. Ketone

D. Alcohol

Answer: B



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19. Alkyl halide can be converted into alkene by

- A. Nucleophilic substitution reaction
- B. Elimination reaction
- C. Both nucleophilic substitution and elimination dipole moment is
- D. Rearrangement

Answer: B

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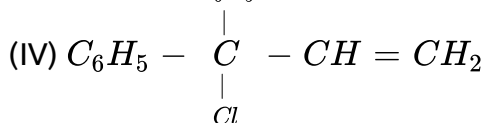
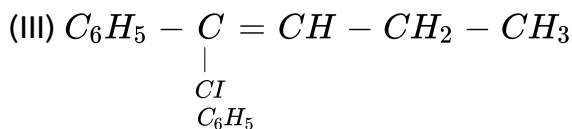
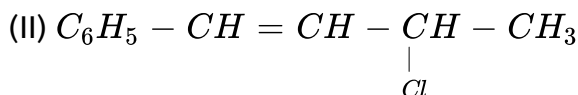
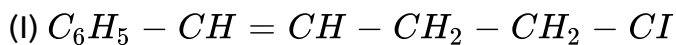
20. Among the following, the molecule with the highest dipole moment is :

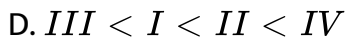
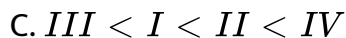


Answer: A

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21. The increasing order of reactivity of the following isomeric halides with $AgNO_3(H_2O + alcohol)$ is

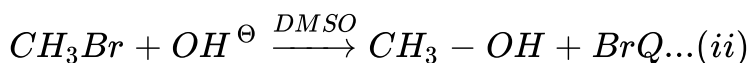
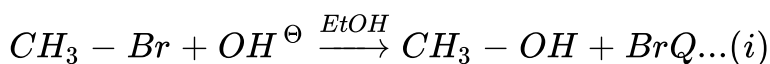




Answer: C

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22. Consider the following reactions which are carried out at the same temperature



Which of the following statement is correct about these reactions

A. Both the reactions take place at the same rate

B. The first reaction takes place faster than second reaction .

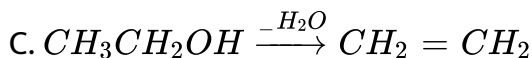
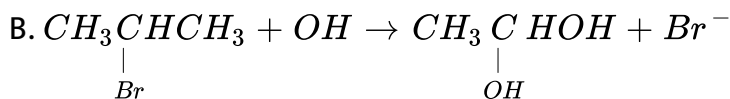
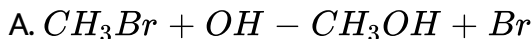
C. The second reaction takes place faster than first reaction .

D. Both the reactions take place by S_N1 mechanism .

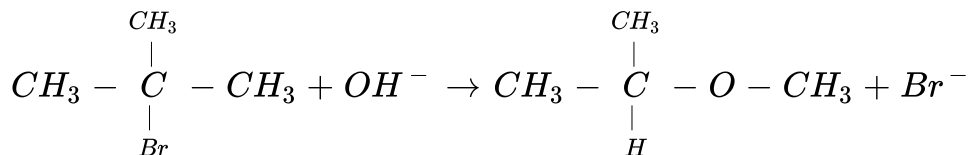
Answer: C

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23. Which of the following is the example of S_N2 reaction .



D.



Answer: A

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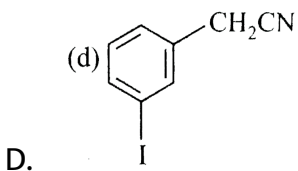
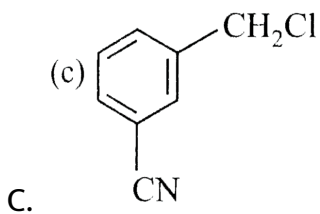
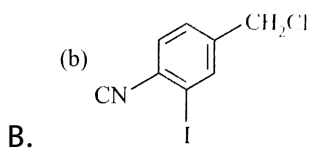
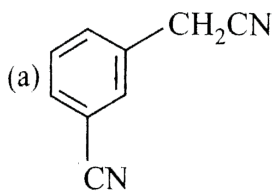
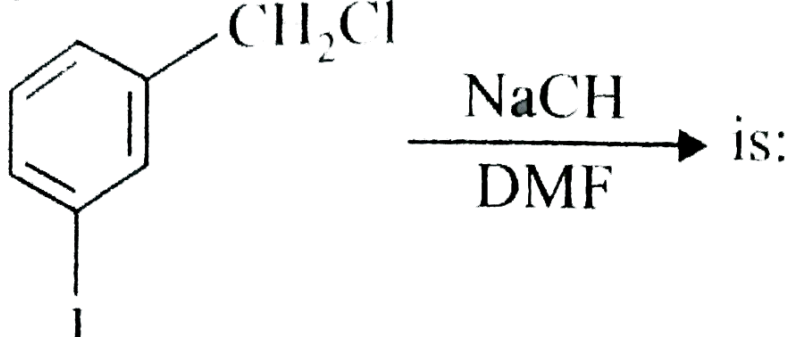
24. Tertiary alkyl halides are practically inert to S_N2 mechanism because of .

- A. Insolubility
- B. Instability
- C. Inductive effect
- D. Steric hindrance

Answer: D

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25. The structure of the major product formed in the following reaction



Answer: D



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26. A solution of (-)- chloro -1 phenylethane in toluene racemises slowly in the presence of a small amount of $SbCl_5$ due to the formation of .

- A. carbanion
- B. carbene
- C. carbocation
- D. free radical

Answer: C

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27. The order of reactivities of the following alkyl halides for an S_N2 reaction is .

A. $RF > RCl > RBr > RI$

B. $RF > RBr > RCl > RI$

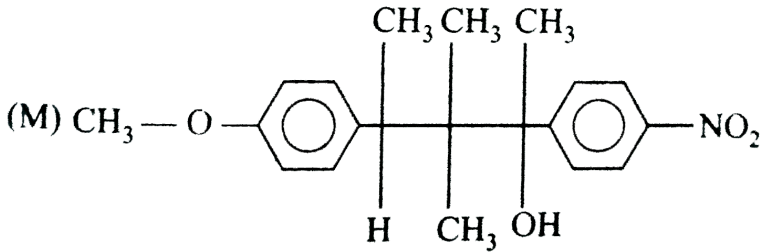
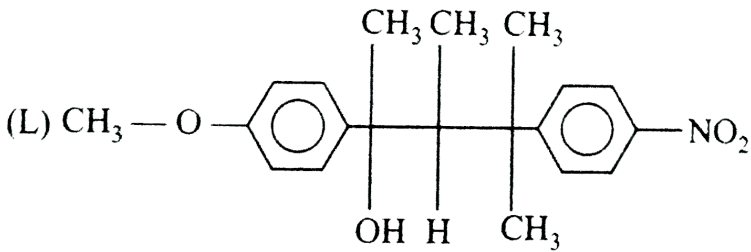
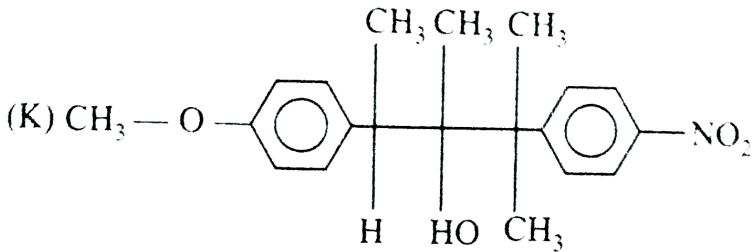
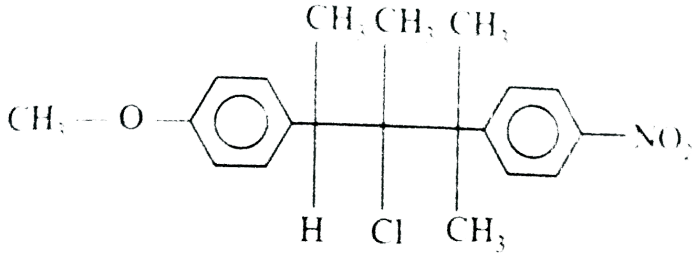
C. $RCl > RBr > RF > RI$

D. $RI > RBr > RCl > RF$

Answer: D

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28. The following compound on hydrolysis in aqueous acetone will give .

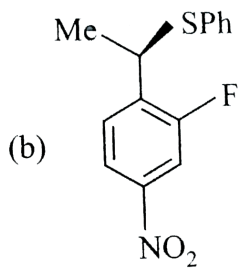
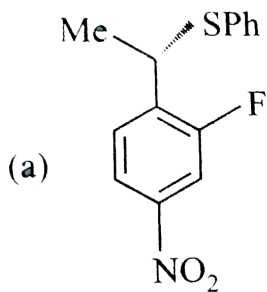
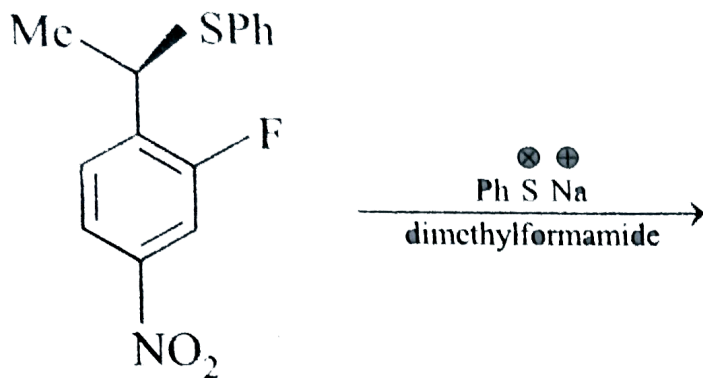


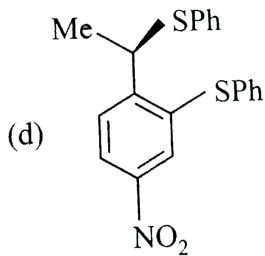
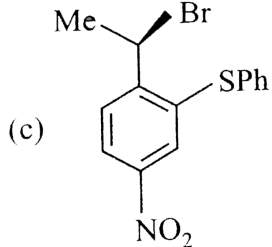
- A. Mixture of (K) and (L)
- B. Mixture of (K) and (M)
- C. only(M)
- D. only(K)

Answer: A

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29. The major product of the following reaction is



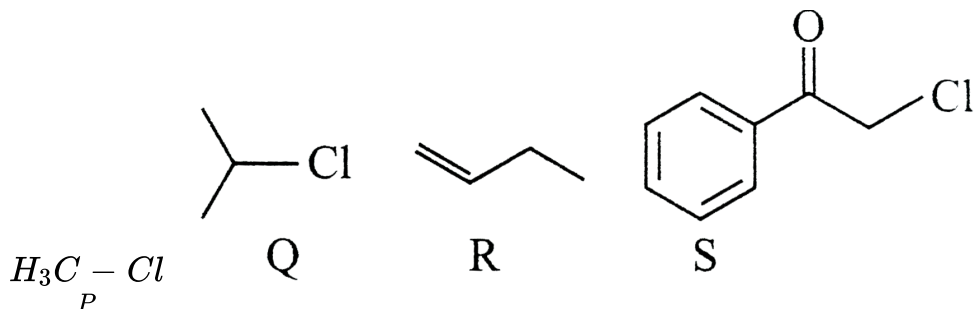


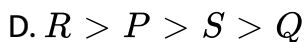
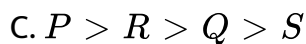
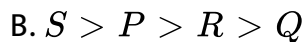
Answer: A

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30. KI in acetone, undergoes S_N2 reaction with each of *P*, *Q*, *R* and

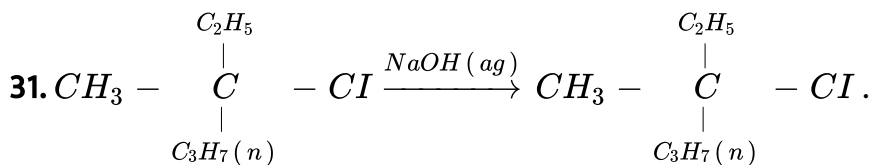
S The rates of the reaction vary as





Answer: B

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The product obtained will be .

A. d-form

B. l-form

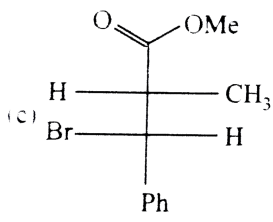
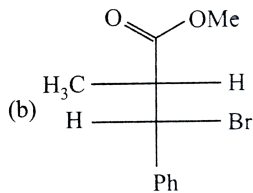
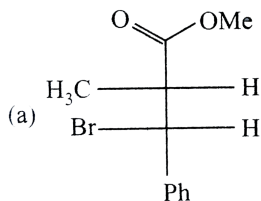
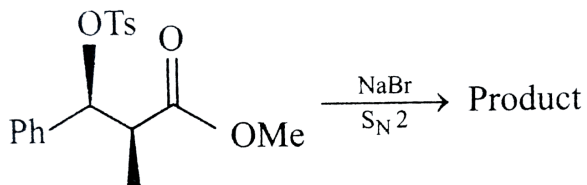
C. racemic mixture mainly

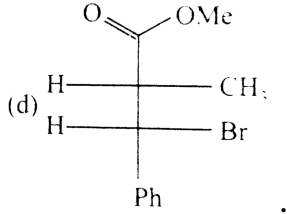
D. None of these

Answer: C

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32. What is the product of the following S_N2 reaction ?





Answer: C

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33. Which is the correct reaction coordinate diagram for the following solvolysis reaction ?



A. 

B. 

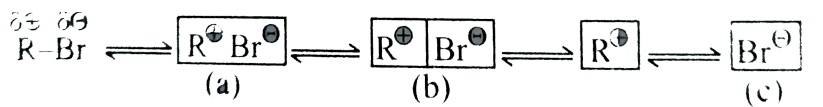
C. 

D. 

Answer: B



34. Rate limiting S_N1 following the sequence The statement about sequence on the basis of assumption that R contains 3 different groups is



- A. more stable carbocation greater is the proportional of racemization .
- B. the more nucleophilic the solvent the greater in the proportion of inversion .
- C. In above sequence (b) represent separately solvated pair of ions .
- D. All of the these

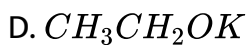
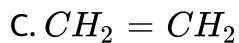
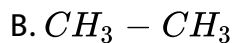
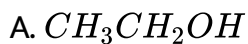
Answer: D



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Elimination Reaction And Polyhalogen Compounds

1. Ethyl chloride +aq KOH gives the product .

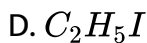
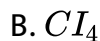


Answer: A



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2. When ethyl alcohol and KI reacted in presence of Na_2CO_3 yellow crystals of ...are formed ? .

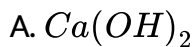


Answer: A



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3. In preparation of $CHCl_3$ from ethanol and bleaching powder the latter provides .



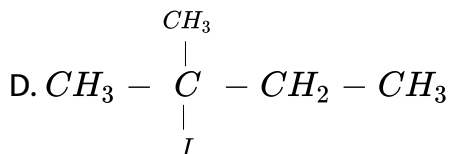
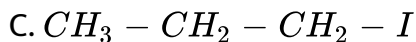
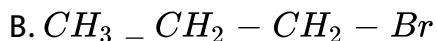
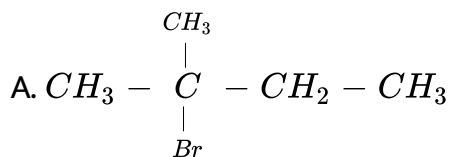
C. Both(a)and(b)

D. None of these

Answer: C

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4. Which one of following compounds undergoes *EI* reaction most readily?



Answer: D

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5. Which one of the following processes does not occur during formation of $CHCl_3$ from C_2H_5OH and bleaching powder? .

A. Hydrolysis Oxidation

B. Oxidation

C. Reduction

D. Chlorination

Answer: C

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6. Chloroform can be obtained from

A. Methanol

B. Methanal

C. Propano1-1

D. Propano1-2

Answer: D

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7. Which compound does not form iodoform with alkali and iodine? .

A. Acetone

B. Ethano1

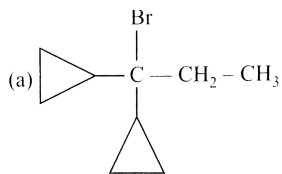
C. Diethyl ketone

D. Isopropyl alcohol

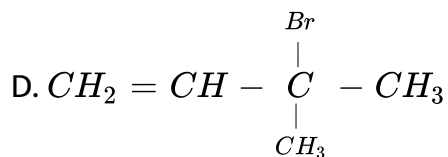
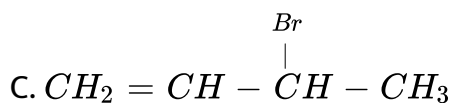
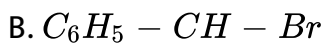
Answer: C

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8. Which of the following will be most reactive for E_1 reaction ? .



A.



Answer: A

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9. Which of the following compound will give a yellow precipitate with iodine and alkali?

A. 2-hydroxy propane

B. Acetophenone

C. Methyl acetone

D. Acetamide

Answer: B

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10. Acetone reacts with I_2 in presence of $NaOH$ to form

A. C_2H_5I

B. $C_2H_4I_2$

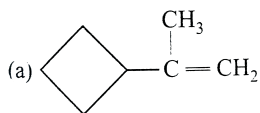
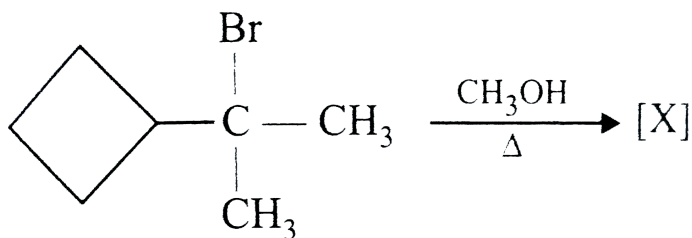
C. CHI_3

D. CH_3I

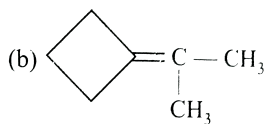
Answer: C

11. In the given reaction

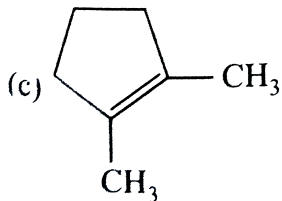
[X] as the major product among the elimination products is



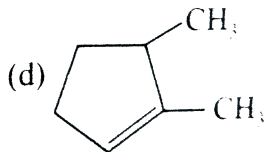
A.



B.



C.



D.

Answer: C

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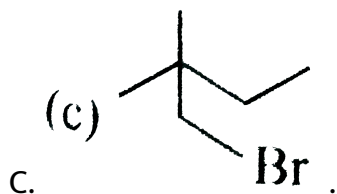
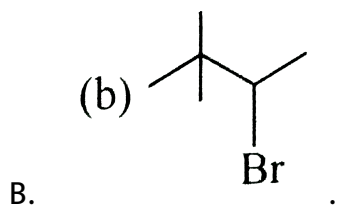
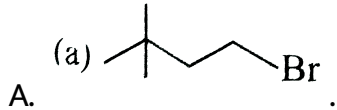
12. Which of the following is responsible for iodoform reaction ? .

- A. Formalin
- B. Methanol
- C. Acetic acid
- D. Ethanol

Answer: D

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13. Which of the following cannot undergo $E2$ reaction ? .



D. None of these

Answer: C

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14. Which of the following compounds gives trichloromethane on distilling with bleaching powder ? .

A. Methanal

B. Phenol

C. Ethanol

D. Methanol

Answer: C

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15. Reaction of ethyl chloride with sodium in presence of dry ether leads to

A. Ethane

B. Propane

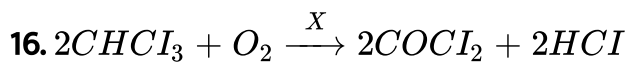
C. n-butane

D. n-pentane

Answer: C



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in the above reaction X stands for .

- A. An oxidant
- B. A reductant
- C. Light and air
- D. None of these

Answer: C



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17. Phosgene is the common name for

- A. CO_2 and PH_3

B. Phosphorylchloride

C. Carbonylchloride

D. Carbon tetrachloride

Answer: C

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18. Reaction $C_2H_5I + C_5H_{11}I + 2Na \rightarrow$

$C_2H_5 - C_5H_{11} + 2NaI$ is called

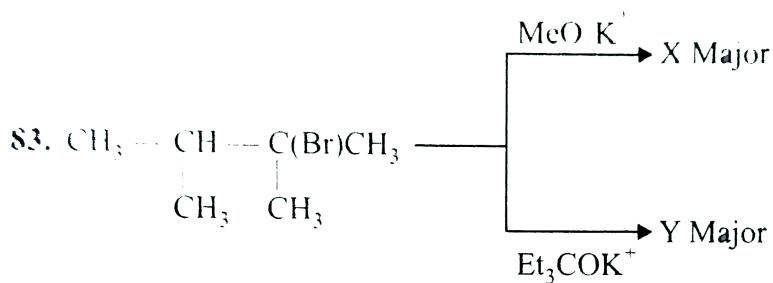
A. Hoffmann's reaction

B. Dow's reaction

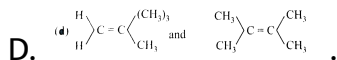
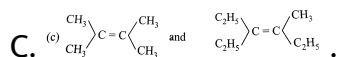
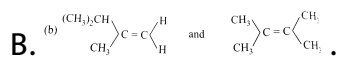
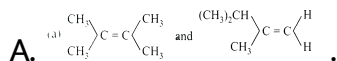
C. Wurtz reaction

D. Riemer-Tiemann's reaction

Answer: C



19.



Answer: A

20. The dehydrobromination of 2-bromobutane gives

$\text{CH}_3\text{CH}=\text{CHCH}_3$ The product is .

- A. Hofmann product
- B. Saytzeff product
- C. Hoffmann-Saytzeff product
- D. Markownikoff product

Answer: B



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21. Which of the following statements about chloroform is false?

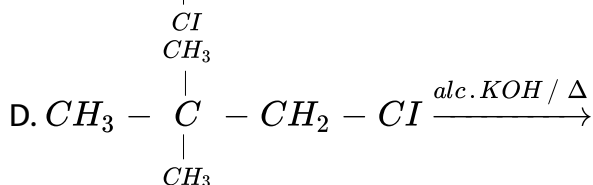
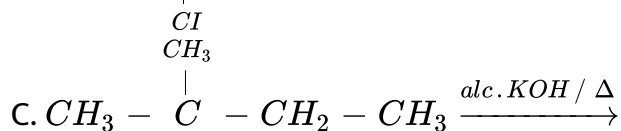
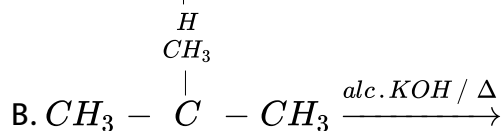
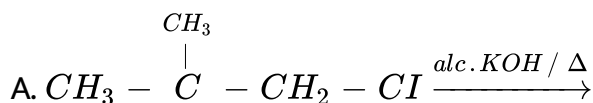
- A. It is a colourless sweet-smelling liquid
- B. It is almost insoluble in water
- C. It is highly inflammable

D. It can be used as an inhalational anaesthetic agent

Answer: C

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22. In which of the following reaction, regioselectivity can be observed .



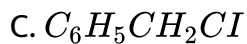
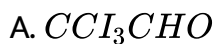
Answer: C





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23. Which of the following compounds will make precipitate most readily with $AgNO_3$?

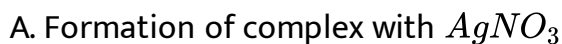


Answer: D



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24. CCl_4 cannot give precipitate with $AgNO_3$ due to.



B. Evolution of CI_2 gas

C. Chloride ion is not formed

D. $AgNO_3$ does not give silver ion .

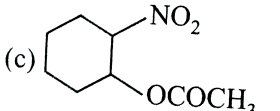
Answer: C

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25. E_1 cB reaction is gives by which of the following

A. $CF_3 - CHCl_2$

B. $C_6H_5 - \underset{\substack{| \\ NO_2}}{C} H - CH_2Br$

C.  .
(c) CC(=O)C1CCC(C1)[N+](=O)[O-]

D. All of these

Answer: D

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26. Ethyl bromide reacts with lead -sodium alloy to form

- A. Tetraethyl lead
- B. Tetraethyl bromide
- C. Both (a) and (b)
- D. none of the above

Answer: A

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27. Iodoform heated with Ag powder to form

- A. Acetylene
- B. Ethylene

C. Methane

D. Ethane

Answer: A



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28. 1-chlorobutane reacts with alcoholic KOH to form

A. 1-butene

B. 2-butene

C. 1-butanol

D. 2-butanol

Answer: A



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29. By heating a mixture of $CHCl_3$ with silver powder the compound formed is

- A. Acetylene
- B. Silver acetate
- C. Methanol
- D. None of these

Answer: A



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30. Chloropicrin is

- A. Trichloro acetaldehyde
- B. Nitrochloroform
- C. 2,4,6-trinitro phenol

D. None of these

Answer: B

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31. $AgNO_3$ does not give precipitate with $CHCl_3$ because .

A. $CHCl_3$ does not ionise in water

B. $AgNO_3$ does not reacts with $CHCl_3$

C. $CHCl_3$ is chemically inert

D. None of these

Answer: A

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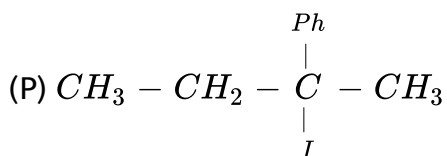
32. When $(1R, 2R) - 1,2$ -Dibromo-1,2-diphenyl ethane is treated with alcoholic solution of KOH the most probable product would be .

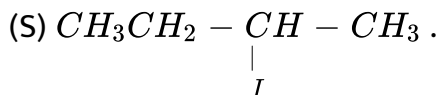
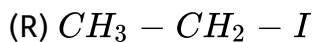
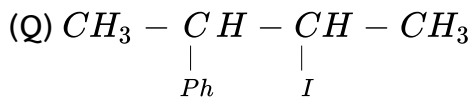
- A. trans-1,2-diphenylethene
- B. A mixture of cis trans alkenyl bromide
- C. cis-alkenyl bromide
- D. trans-alkenyl bromide

Answer: D

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33. The correct order of S_N2/E_2 ratio for the % yield of product of the following halide is





A. $R > S > Q > P$

B. $R > Q > S > P$

C. $P > R > S > Q$

D. $Q > P > R > S$

Answer: A

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34. In Wurtz reaction alkyl halide react with

A. Sodium in ether

B. Sodium in dry ether

C. Sodium only

D. Alkyl halide in ether

Answer: B



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35. Chloroform reacts with concentrated HNO_3 to give

A. Water gas

B. Tear gas

C. Laughing gas

D. Producer gas

Answer: B



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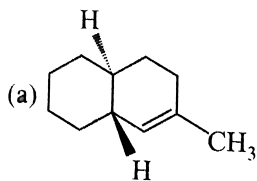
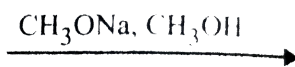
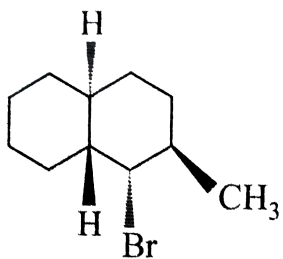
36. Two percent of ethanol is added during the oxidation of chloroform to stop the formation of carbonyl chloride. In this reaction, ethanol acts as

- A. Auto catalyst
- B. Negative catalyst
- C. Positive catalyst
- D. None of these

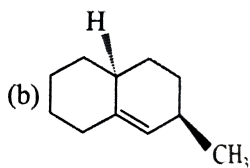
Answer: B

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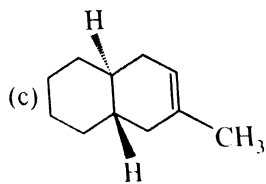
37. Provide the structure of the major organic product which results in the following reaction.



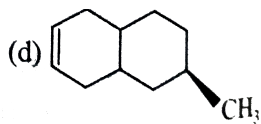
A.



B.



C.

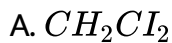


D.

Answer: B

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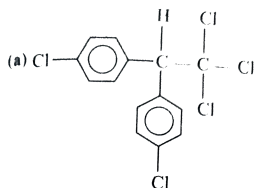
38. In the following reaction X is



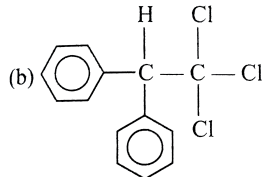
Answer: B

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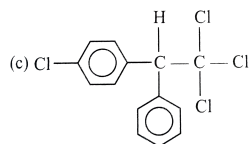
39. Which one of the following is the correct formula of dichlorodiphenyl trichloroethane ? .



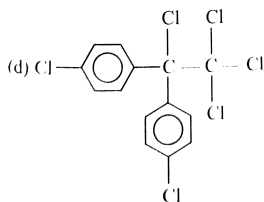
A.



B.



C.



D.

Answer: A

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40. CF_xCl_y [Where $x + y = 4$] These compounds are not used because

A. These are fluorocarbons

B. These are difficult to synthesise

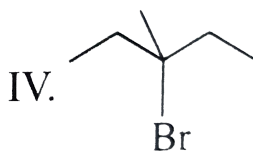
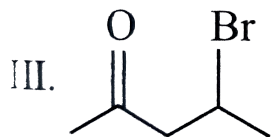
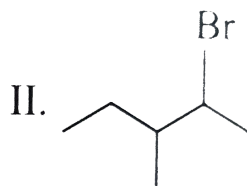
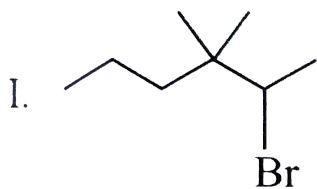
C. They deplete ozone layer

D. None of these

Answer: C

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41. What is the increasing order of reactivity of the following in an E_2 reaction with ethanolic KOH solution ?



A. $I < II < III < IV$

B. $I < II < IV < III$

C. $III < I < II < IV$

D. $IV < III < II < I$

Answer: B

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42. Freon (dichlorodifluoro methane) is used .

A. As local anaesthetic

B. For dissolving impurities in metallurgical process .

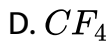
C. In refrigerator

D. In printing industry

Answer: C

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

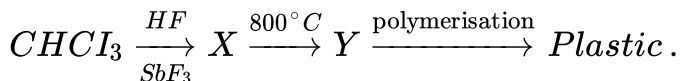


Answer: A



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44. Which plastic is obtained from $CHCl_3$ as follows .



A. Bakelite

B. Teflon

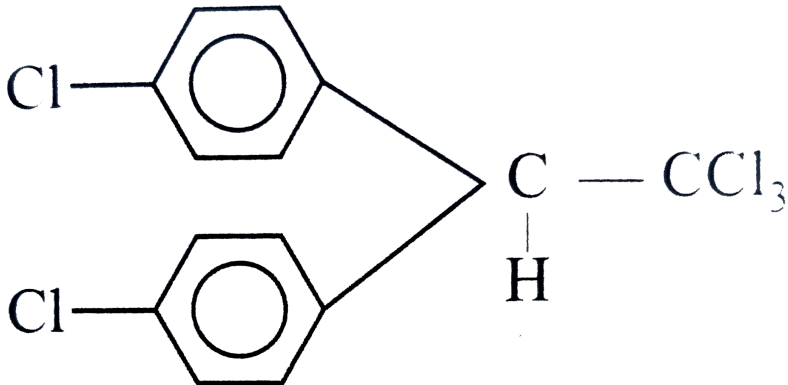
C. Polythene

D. Perspex

Answer: B

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45. The above structural formula refers to



A. BHC

B. DNA

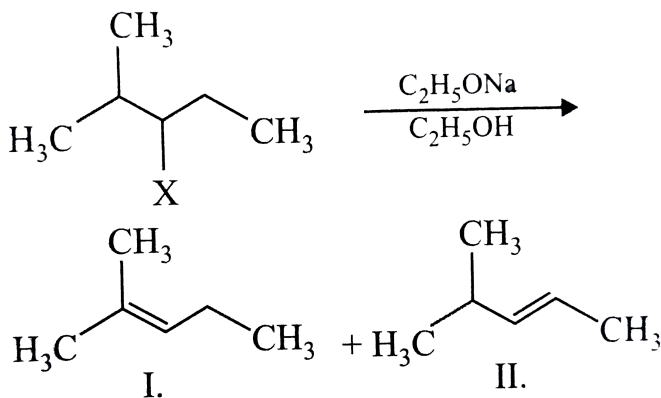
C. DDT

Answer: C



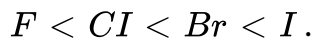
46. In the reaction the given below

The incorrect statement concerning the above reaction is are



- A. (I) is the major elimination product
- B. (II) is formed at faster rate than (I)
- C. (I) is formed at faster rate than (II)

D. increasing order of reactivity with different X is



Answer: C



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47. An isomer of $C_3H_6Cl_2$ on boiling with aqueous KOH gives acetone Hence the isomer is

A. 2,2dichloropropane

B. 1,2dichloropropane

C. 1,1dichloropropane

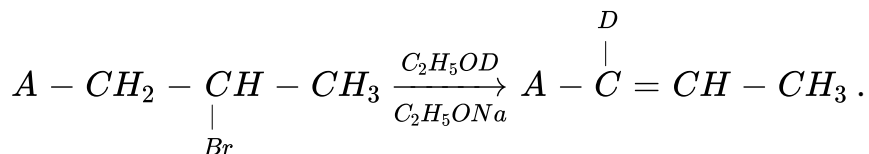
D. 1,3dichloropropane

Answer: A



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48. Consider the following reaction and the product formed



One of various product

The most likely mechanism of the above reaction is

- A. E_2
- B. E_1cb
- C. E_1
- D. E_2c

Answer: B



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49. An organic compound $A(C_4H_6Cl)$ on reaction with Na/diethyl ether gives a hydrocarbon which on monochlorination gives only one chloro derivative A is .

- A. t-butyl chloride
- B. s-butyl chloride
- C. Isobutyl chloride
- D. n-butylchloride

Answer: A

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50. CH_3MgBr is an organometallic compound due to

- A. Mg -Br bond
- B. C-Mg bond

C. C-Br bond

D. C-H bond

Answer: B



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51. When primary amine reacts with chloroform in ethanolic KOH then the product is .

A. An isocyanide

B. An aldehyde

C. A cyanide

D. An alcohol

Answer: A



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52. Alkyl halides react with dialkyl lithium cuprate to give

- A. Alkenes
- B. Alkyl copper halide
- C. Alkanes
- D. Alkenyl halide

Answer: C

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53. Elimination of HBr from 2-bromobutane results in the formation of .

- A. Equimolar mixture of 1-and 2-butene
- B. Predominantly 2-butene

C. Predominantly 1-butene

D. Predominantly 2-butanol

Answer: B

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54. Which product is formed when trans-2-phenyl-1-bromocyclopentane is treated with alcoholic KOH?

A. 4-Phenylcyclopentene

B. 2-Phenylcyclopentene

C. 1-Phenylcyclopentene

D. 3-Phenylcyclopentene

Answer: C

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55. The major organic compound formed by the reaction of 1,1,1-trichloroethane with silver powder is .

A. acetylene

B. ethene

C. 2-butyne

D. 2-butane

Answer: C



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56. Iodoform can be prepared from all except

A. ethylmethylketone

B. isopropyl alcohol

C. 3 methyl-2 butanone

D. isobutylalcohol

Answer: D

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57. n-Propyl bromide on treatment with ethanolic potassium hydroxide produces .

A. Propane

B. Propene

C. Propyne

D. Propano1

Answer: B

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58. 1-chlorobutane reacts with alcoholic KOH to form

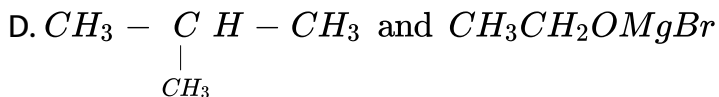
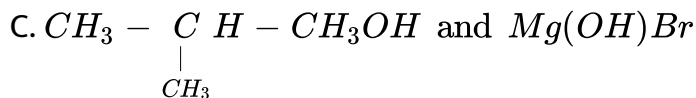
- A. 1-butene
- B. 2-butene
- C. 1-butanol
- D. Propano1

Answer: B

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59. Isobutyl magnesium bromide with dry ether and absolute alcohol gives

- A. $CH_3 - \underset{\substack{| \\ CH_3}}{C} H - CH_2OH$ and CH_3CH_2MgBr
- B. $CH_3 - \underset{\substack{| \\ CH_3}}{C} H - CH_3OH$ and $MgBr(OC_2H_5)$



Answer: B

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60. During debromination of meso – dibromobutane, the major compound formed is

A. n-butane

B. 1-butene

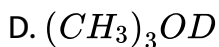
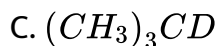
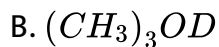
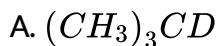
C. cis-2butene

D. trans-2butene

Answer: D

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61. $(CH_3)_3CMgCl$ on reaction with D_2O produces

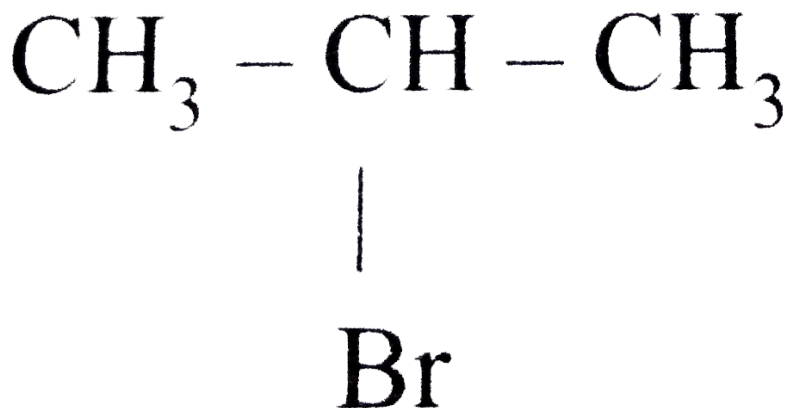
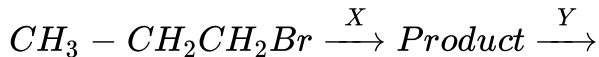


Answer: A



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62. Identify the set of reagents / reaction conditions 'X' and 'Y' in the following set of transformations.



A. $X =$ dilute aqueous $NaOH$, $20^\circ C$, $Y = HB /$ acetic acid $20^\circ C$

.

B. $X =$ concentrated alcoholic $NaOH$, $80^\circ C$, $Y = HBr /$ acetic acid, $20^\circ C$.

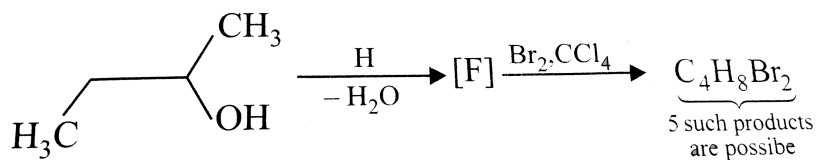
C. $X =$ dilute aqueous $NaOH$, $20^\circ C$, $Y = Br_2 / CHCl_3$, $0^\circ C$.

D. $X =$ concentrated alcoholic $NaOH$, $80^\circ C$, $Y = Br_2 / CHCl_3$.

Answer: B

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63. How many structures for F are possible



A. 2

B. 5

C. 6

D. 3

Answer: D

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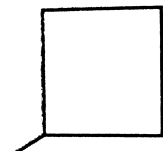
64. What would be the product formed when 1-bromo-3-chlorocyclobutane reacts with two equivalents of metallic sodium in

water ?

(a)

A.

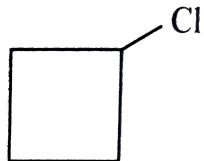
Br



.

(b)

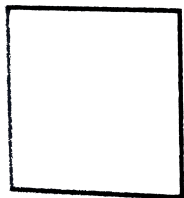
B.



.

(c)

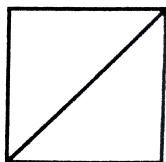
C.



.

(d)

D.



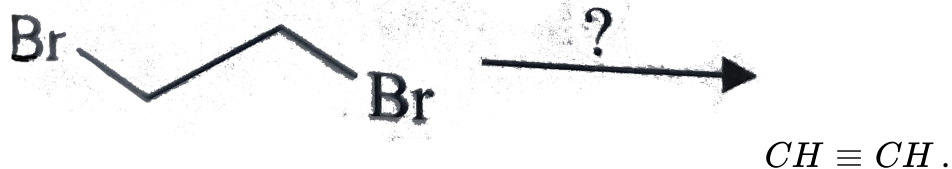
.

Answer: D



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65. The reagents (s) for the following conversion



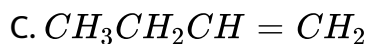
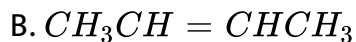
- A. alcoholic KOH
- B. alcoholic KOH followed by NaNH_2
- C. aqueous KOH followed by NaNH_2 .
- D. $\text{Zn} / \text{CH}_3\text{OH}$

Answer: B

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66. The major product obtained on treatment of $\text{CH}_3\text{CH}_2\text{CH}(\text{F})$

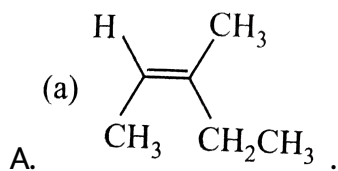
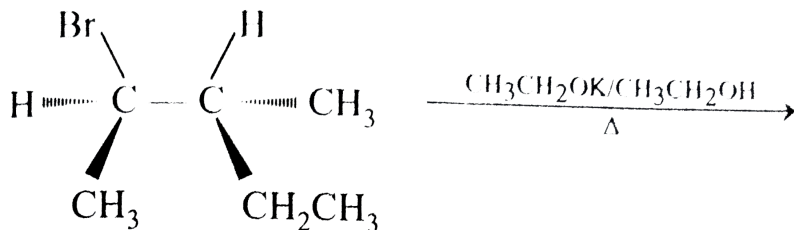
CH_3 with $\text{CH}_3\text{O}^- / \text{CH}_3\text{OH}$ is .

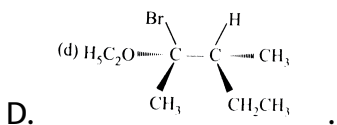
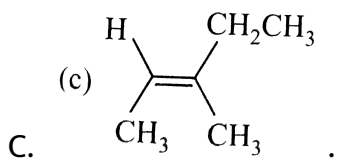
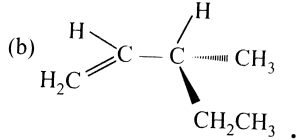


Answer: B

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67. Select the formula representing the major product of the following reaction .



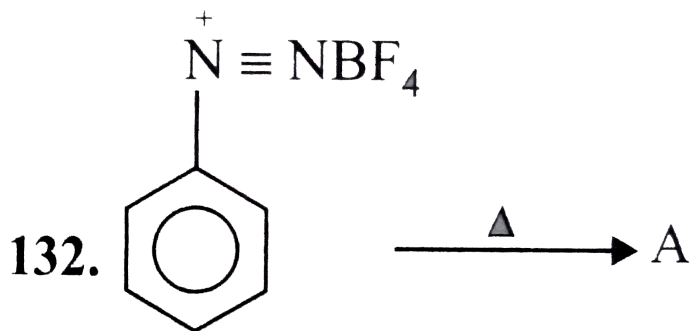


Answer: C

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Methods Of Preparation of Haloarenes

1. In the above process product *A* is



A. Fluorobenzene

B. Benzene

C. 1,4-difluorobenzene

D. 1,3-difluorobenzene

Answer: A

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2. X , Y and Z have the value of μ as 1.78, 1.9 and 1.3D respectively Which of the following could be X .

- A. o-chlorotoluene
- B. m-chlorotoluene
- C. p-chlorotoluene
- D. Data insufficient

Answer: B



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3. Chlorobenzene is prepared commercially by

- A. Rasching process
- B. Wurtz-Fitting reaction
- C. Friedel-Crafts reaction

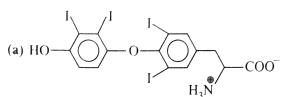
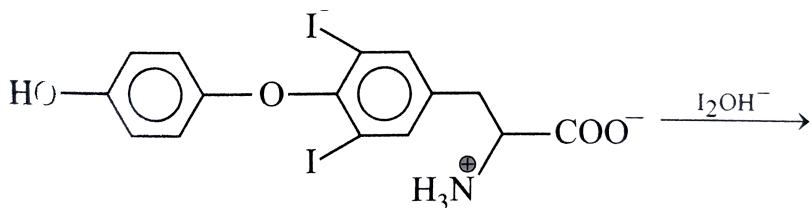
D. Grignard reaction

Answer: A

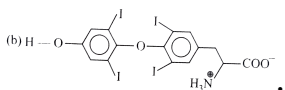
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4. Consider the following reaction

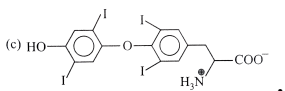
Thyroxine a thyroid hormone that helps to regulate metabolic rate .



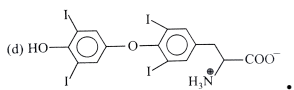
A.



B.



C.



D.

Answer: D

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5. $C_6H_6 + CI_2 \xrightarrow{UV\text{Light}}$ Product In above reaction product is .

A. CC_3CHO

B. $C_6H_6CI_6$

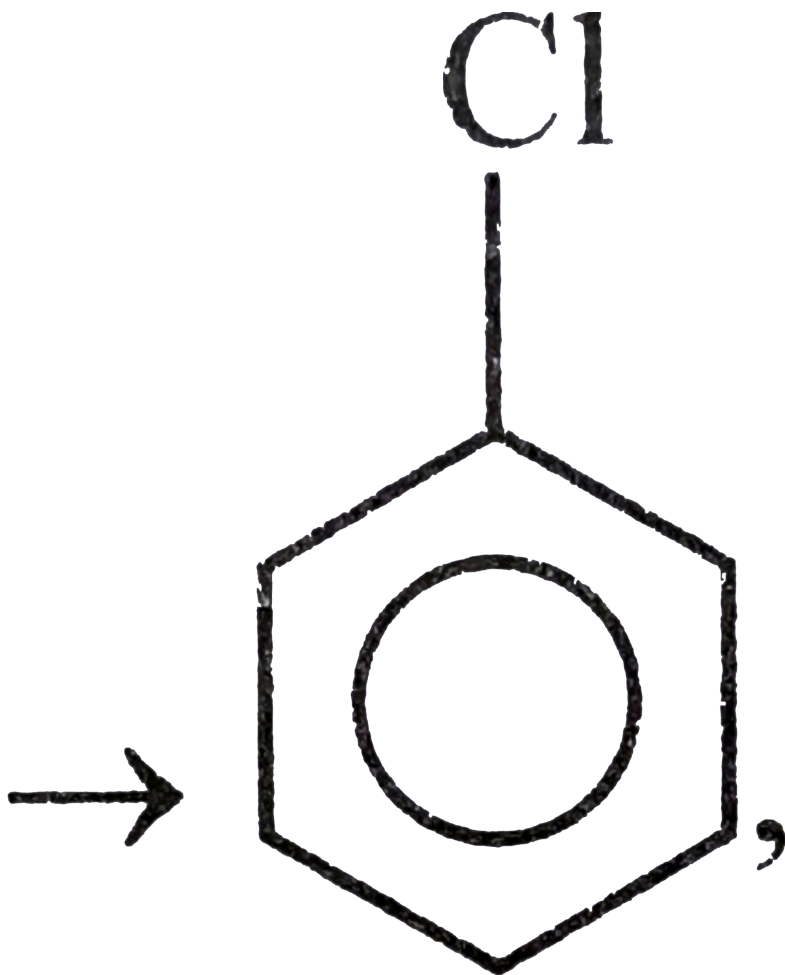
C. $C_6H_{12}CI_6$

D. $C_6H_9CI_2$

Answer: B

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6. Diazonium salts + $Cu_2Cl_2 + HCl \rightarrow$ the reaction is known as



A. Chlorination

B. Sandmeyer's reaction

C. Fittig's reaction

D. Carbylamine reaction

Answer: B

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7. m-Bromotoluene is prepared by

A. Bromination of toluene

B. Friedel Crafts reaction of bromobenzene with CH_3Cl

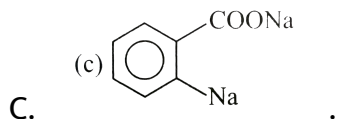
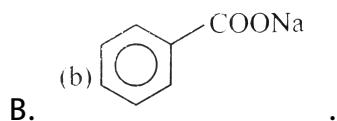
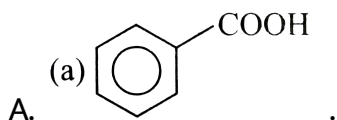
C. Bromination of nitrobenzene and subsequent replacement of
– NO_2 group with methyl group

D. Bromination of aceto -p-toluidine followed by hydrolysis and
demination .

Answer: D

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8. Toluene reacts with excess of Cl_2 in presence of sunlight to give a product which on hydrolysis followed by reaction with $NaOH$ gives .

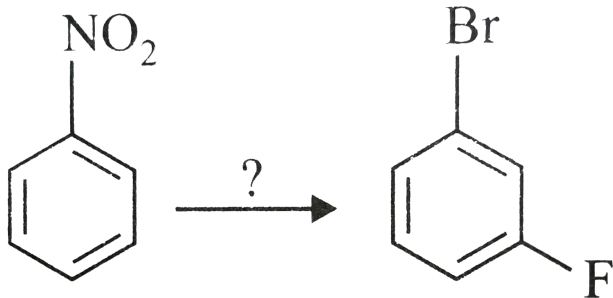


D. None of these

Answer: B

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9. Which of the following will best convert nitobenzene into 3-fluorobromobenzene



- A. $F_2 / AlCl_3, Zn / HCl, NaNO_2 / HCl - 0^\circ C, CuBr$.
- B. $SnCl_2 / HCl, Br / FeBr_2, NaNO_2 / HBF_4 - 0^\circ C, heat$.
- C. $SnCl_2 / HCl, NaNO_2 / HBF_4 - 0^\circ C, heat, Br_2 / FeBr_3$.
- D. $Br_2 / FeBr_3, SnCl_2 / HCl, NaNO_2 / HBF_4)^\circ C, heat$.

Answer: D

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10. m-Bromotoluene is prepared by

A. Bromination of toluene

B. Friedel Craft s reaction of bromobenzene with CH_3Cl

C. Bromination of nitrobenzene and subsequent replacement of $-NO_2$ group with methyl group

D. Bromination of aceto -p-toluidine followed by hydrolysis and demination .

Answer: D

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11. 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. $X = m$ - Benzal chloride, $Y = p$ -chlorotoluene

D. $X = o$ -and p -chlorotoluene $Y =$ Trichloromethy 1 benzene .

Answer: D

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12. Which one among the following compounds has the highest dipole moment ? .

A. o -bromochlorobenzene

B. o -dibromobenzene

C. m -dichlorobenzene

D. o -dichlorobenzene

Answer: D

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13. Fluorobenzene (C_6H_5F) can be synthesized in the laboratory ,

- A. By heating phenol with HF and KF
- B. From aniline by diazotization followed by heating the diazonium salt with HBF_4 .
- C. By direct fluorination of benzene with F_2 gas
- D. By reacting bromobenzene with NaF solution .

Answer: B

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14. The reaction of toluene with Cl_2 in presence of $FeCl_3$ gives predominantly

- A. Benzoyl chloride
- B. Benzylchloride

C. o-and p-chlorotoluene

D. m-chlorotoluene

Answer: C

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15. Chlorobenzene can be prepared by reacting aniline with

A. hydrochloric acid

B. cuprous chloride

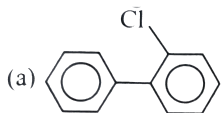
C. chlorine in presence of anhydrous aluminium chloride

D. nitrous acid followed by heating with cuprous chloride .

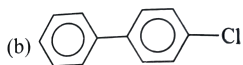
Answer: D

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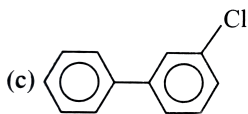
16. The reaction of biphenyl with $HOCl$ in the presence of a strong acid gives (major)



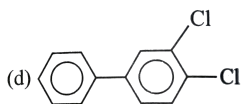
A.



B.



C.



D.

Answer: B

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17. The reaction of toluene with Cl_2 in presence of $FeCl_3$ gives predominantly

- A. Benzoyl chloride
- B. m-chlorotoluene
- C. Benzoyl chloride
- D. o-and p-chlorotoluene

Answer: D

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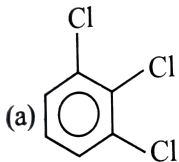
18. On treatment with chlorine in presence of sunlight toluene gives the product .

- A. o-chlorotoluene
- B. 2,5-dichloro toluene
- C. p-chloro toluene
- D. Benzyl chloride

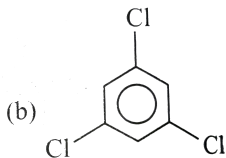
Answer: D

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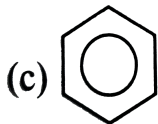
19. When the all-cis isomer of $C_6H_6Cl_6$ (1, 2, 3, 4, 5, 6-Hexachlorocyclohexane) is heated with alcKOH the most probable product is .



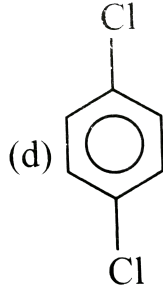
A.



B.



C.



D.

Answer: B

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Chemical Properties Of Haloarenes

1. An aromatic compound of molecular formula $C_6H_4Br_2$ was nitrated then three isomers of formula $C_6H_3Br_2NO_2$ were obtained. The original compound is .

A. o-dibromobenzene

B. m-dibromobenzene

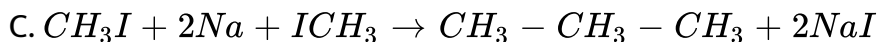
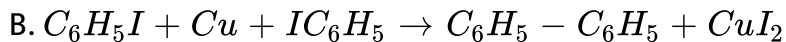
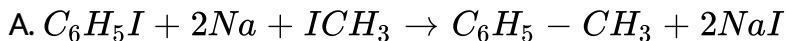
C. p-dibromobenzene

D. Both a and c

Answer: B

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2. Which of the following is Wurtz-Fitting reaction?

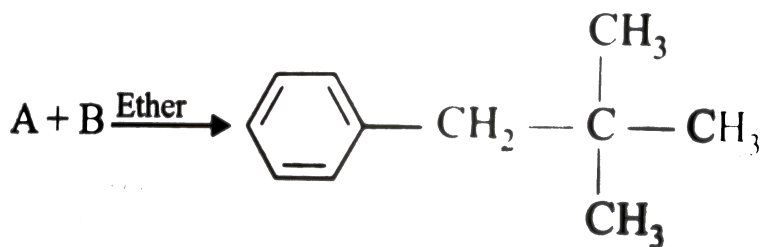


D. none of the above

Answer: A

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3. The best yield of given product can be obtained by using which set of reactants *A* and *B* respectively

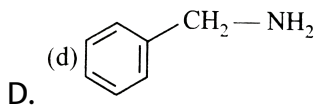
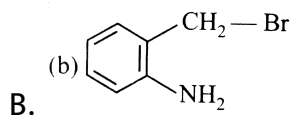
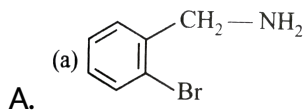
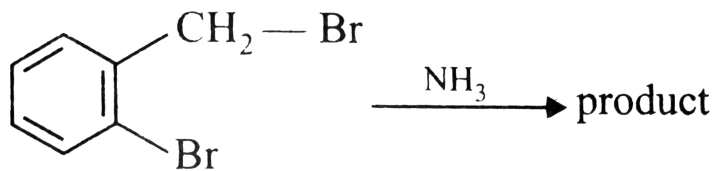


- A. $\text{PhLi} + \text{Neopentylchloride}$
- B. $\text{t-Bu-MgBr} + \text{Benzylbromide}$
- C. $\text{PhMgBr} + \text{Neopentyl bromide}$
- D. $\text{Benzylchloride} + \text{t-Butylchloride}$

Answer: B

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4. What is the major product obtained in the following



Answer: A

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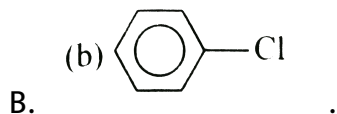
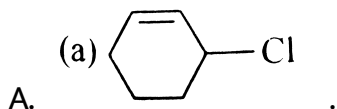
5. Aryl halides are less reactive towards nucleophilic substitution reaction as compared to alkyl halides due to

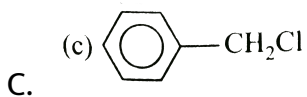
- A. The formation of less stable carbanion
- B. Longer carbon halogen bond
- C. The inductive effect
- D. sp^2 - hybridized carbon attached to the halogen

Answer: D

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6. Which will give white ppt. with $AgNO_3$?



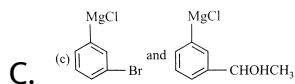
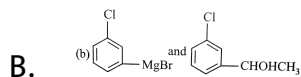
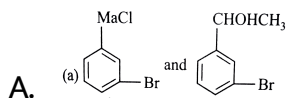
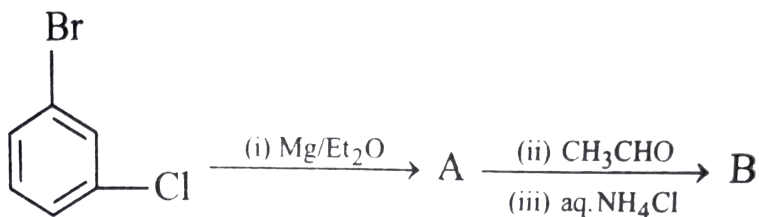


D. Both (a) and (c)

Answer: D

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7. What are *A* and *B* in the following reaction ?



D. None of these

Answer: B

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8. When chlorine is passed through warm benzene in presence of the sunlight the product obtained is .

A. Benzotrichloride

B. Chlorobenzene

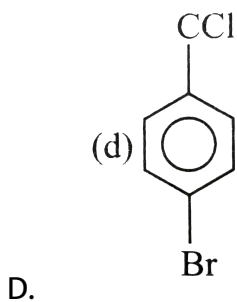
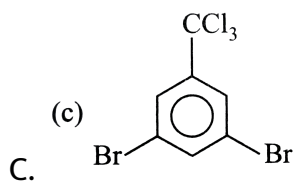
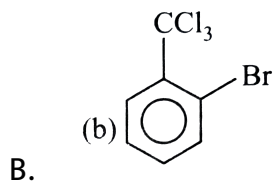
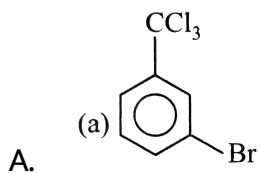
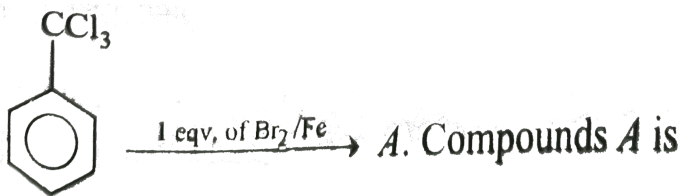
C. Gammexane

D. DDT

Answer: C

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9. Complete the following reaction



Answer: A

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10. Chlorobenzene is .

- A. Less reactive than benzyl chloride
- B. More reactive than ethyl bromide
- C. Nearly as reactive as methyl chloride
- D. More reactive than isopropyl chloride

Answer: A

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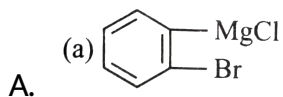
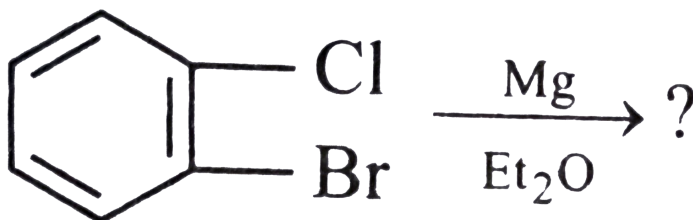
11. In presence of $AlCl_3$ benzene and n-propyl bromide react in Friedel-Crafts reaction to form .

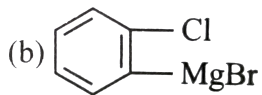
- A. n-propyl benzene
- B. 1,2dinormal propyl benzene
- C. 1,4dinormal propyl benzene
- D. Isopropylbenzene

Answer: D

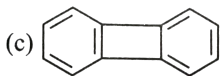
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12. What is product of the following reaction





B.



C.

D. None of these

Answer: C

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13. Chlorobenzene on fusing with solid $NaOH$ gives

A. Benzene

B. Benzoic acid

C. Phenol

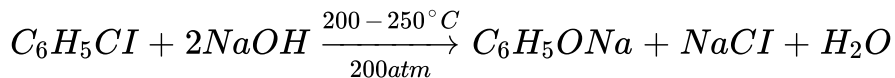
D. Benzene chloride

Answer: C



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14. Following equation illustrates



- A. Dow's process
- B. Kolbe's process
- C. Carbylamine test
- D. Haloform reaction

Answer: A



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15. Aryl halides are less reactive towards nucleophilic substitution because

A. Less stable carbonium ion

B. Due to large $C - CI$ bond energy

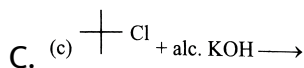
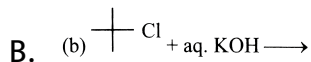
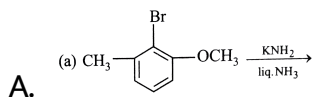
C. Inductive effect

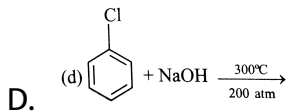
D. Resonance stabilization and sp^2 -hybridisation of C attached to halide .

Answer: D

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16. Which of the following reaction does not take place ?

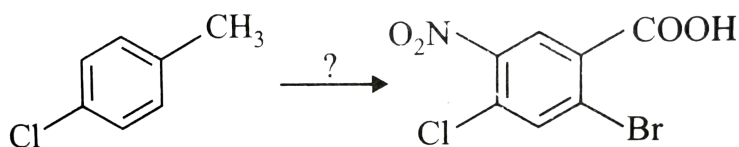




Answer: A

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17. Which of the following procedures would be best for achieving the following reaction



A. i *NBS* in CCl_4 and heat, ii $NaNO_2$ iii $KMnO_4$ and heat

B. $KMnO_4$ and heat ii $Br_2 + FeBr_3$ iii HNO_3 and H_2SO_4

C. i *NBS* in CCl_4 and heat ii $KMnO_4$ and heat iii HNO_3 and H_2SO_4

D. $Br_2 + FeBr_3$ (ii) $KMnO_4$ and $heat$ (iii) HNO_3 and H_2SO_4 .

Answer: D

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

- A. NO_2 make ring electron rich at ortho and para
- B. NO_2 withdraws bare from meta position
- C. denotes bare at meta position
- D. NO_2 withdraws bare from ortho / para positions

Answer: D

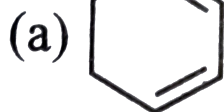


19. What term describes the reactive intermediate formed in the following reaction of p-bromotoluene with $\text{NaNH}_2, \text{NH}_3 - 33^\circ \text{C}$ to give $\text{CH}_3(\text{C}_6\text{H}_4)\text{NH}_2$ in a ratio of 50% para isomer and 50% meta isomer?

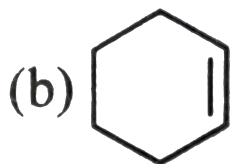
- A. Ary radical
- B. Benzyne formation
- C. Sigma complex
- D. Benzo cation

Answer: B

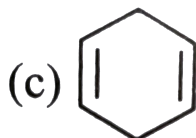
20. 1,2 di bromo cyclohexane on dehydrohalogenation gives



A.



B.



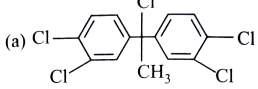
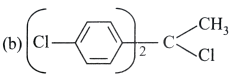
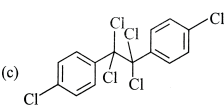
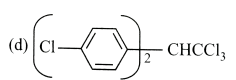
C.

D. None of these

Answer: A

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21. The increasing *DDT* is prepared by heating chlorobenzene with chloral (CCl_3CHO) in the presence of once sulphuric acid Which of the following compounds is *DDT* ?

- A. 
- B. 
- C. 
- D. 

Answer: D

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22. In the conversion of p-nitrofluoro benzene to p-nitroanisole intermediate X is involved. The true statements about the intermediate X is /are

- (i) the intermediate is aromatic (ii) the intermediate is resonance stabilized anion (iii) electron withdrawing group on the benzene ring stabilize the intermediate.

A. II and III

B. Only II

C. I and III

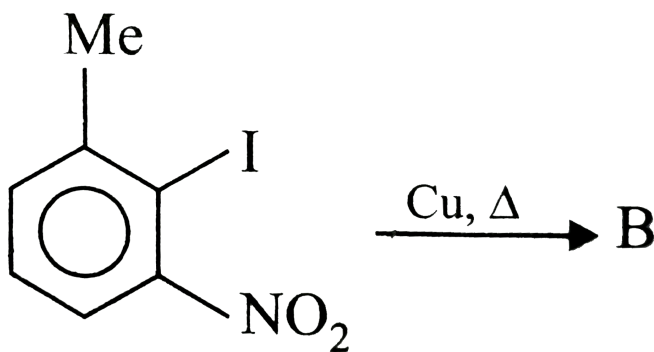
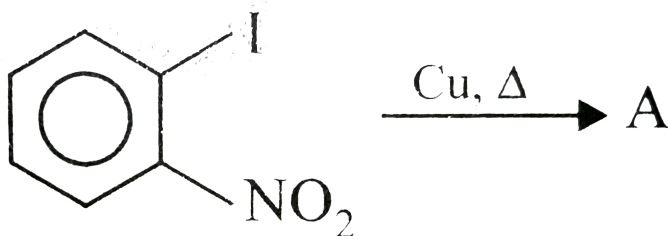
D. Only I

Answer: A



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23. Select the correct statement about *A* and *B*



A. *B* is optically active but *A* does not

B. *A* is optically active but *B* does not

C. Both *A* and *B* are optically active because of the presence of chiral centres

D. Both A and B are optically inactive because of the presence of vertical plane of symmetry

Answer: A



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24. Which of the following sets of reagents used in the order shown would enable the preparation of p-iodophenol from p-iodonitrobenzene ? .

A. 1. Fe, HCl , 2. $NaOH$, 3. $NaNO_2, H_2SO_4$, 4. H_3PO_2

B. 1. $NaOH$ heat, 2. HCl

C. 1. $FeHCl$, 2. $NaOH$, 3. $NaNO_2, H_2SO_4$, 4 ethanol

D. 1. Fe, HCl , 2. $NaOH$, 3. $3NaNO_2, H_2SO_4$, 4. H_2O , heat

Answer: D



25. Bottles containing C_6H_5I and $C_6H_5 - CH_2I$ lost their original labels. They were labelled A and B for testing. A and B were separately taken in a test tube and boiled with $NaOH$ solution. The end solution in each tube was made acidic with dilute HNO_3 and then some $AgNO_3$ solution was added. Substance B gave a yellow precipitate. Which one of the following statements is true for this experiment.

A. B was C_6H_5I

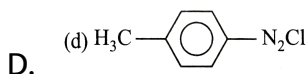
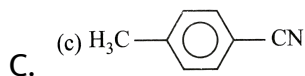
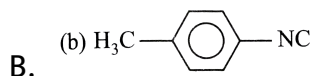
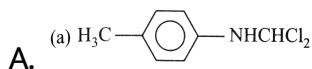
B. Addition of HNO_3 was unnecessary

C. A was C_6H_5I

D. A was $C_6H_5CH_2I$

Answer: C

26. The reaction of chloroform with alcoholic KOH and p-toluidine forms



Answer: B

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27. The compound formed on heating chlorobenzene with chloral in presence of conc H_2SO_4 is .

A. Hexachloroethane

B. DDT

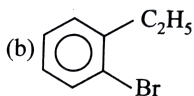
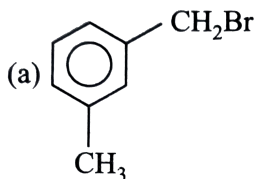
C. Freon

D. Gammexane

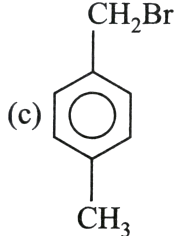
Answer: D

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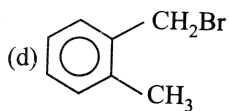
28. Compound (A) C_8H_9Br gives a white precipitate when warmed with alcoholic $AgNO_3$. Oxidation of (A) gives an acid (B) $C_8H_6O_4$ (B) easily anhydride on heating. Identify the compound (A).



B.



C.



D.

Answer: D

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29. In the reaction of p-chlorotoluene with KNH_2 in liquid NH_3 the major product is .

A. o-Toluidine

B. m-Toluidine

C. p-Toluidine

D. p-Chloroaniline

Answer: B

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30. When phenyl magnesium bromide reacts with *t* – *bu tan ol* the product would be :

A. Benzene

B. Pheno1

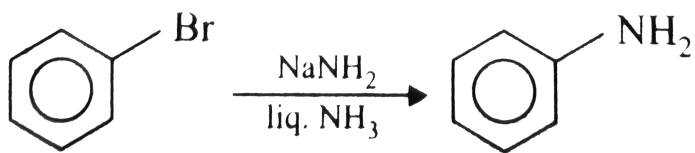
C. tert-butylbenzene

D. tert-butylphenylether

Answer: A

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31. The reaction is



A. ArS_N1

B. ArS_N2

C. Nucleophilic substitution via benzyne formation

D. None of these

Answer: C

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Section B Assertion Reasoning

1. Assertion: C_6H_5Cl on treating with $NaOH$ does not show replacement of Cl atom by OH

Reason: The resonance in chlorobenzene stabilizes the molecule .

A. If both assertion and reason are true and the reason is the correct explanation of the assertion .

B. If both assertion and reason are true but reason is the correct explanation of the assertion .

C. If assertion is true but reason is false

D. If assertion is false but reason is true .

Answer: A

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2. Assertion: of tert butyl chloride with Na gives 2, 2, 3, 3-tetramethyl butane

Reason Tert butyl chloride on Wurtz reaction gives alkene.

- A. If both assertion and reason are true and the reason is the correct explanation of the assertion .
- B. If both assertion and reason are true but reason is the correct explanation of the assertion .
- C. If assertion is true but reason is false
- D. If assertion is false but reason is true .

Answer: D

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3. Assertion The p - isomer of dichlorobenzene has higher m.p than o- and m isomer

Reason p-isomer is symmetrical and thus shows more closely packed structure .

A. If both assertion and reason are true and the reason is the correct explanation of the assertion .

B. If both assertion and reason are true but reason is the correct explanation of the assertion .

C. If assertion is true but reason is false

D. If assertion is false but reason is true .

Answer: A



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4. Assertion: n-butyl chloride has lower b.p than n-butyl bromide

Reason The b.p increases with increase in molar mass .

- A. If both assertion and reason are true and the reason is the correct explanation of the assertion .
- B. If both assertion and reason are true but reason is the correct explanation of the assertion .
- C. If assertion is true but reason is false
- D. If assertion is false but reason is true .

Answer: A



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5. Assertion: RI is more reactive than RCI towards S_N reaction

Reason: The rate of reaction for S_N1 or S_N2 mechanism is

$RI > RCI$.

- A. If both assertion and reason are true and the reason is the correct explanation of the assertion .
- B. If both assertion and reason are true but reason is not the correct explanation of the assertion .
- C. If assertion is true but reason is false
- D. If assertion is false but reason is true .

Answer: A

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6. Assertion: *NBS* is a specific reagent for allylic bromination

Reason: Allylic bromination occurs through free radical intermediates .

- A. If both assertion and reason are true and the reason is the correct explanation of the assertion .
- B. If both assertion and reason are true but reason is the correct explanation of the assertion .
- C. If assertion is true but reason is false
- D. If assertion is false but reason is true .

Answer: B



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7. Assertion: n- Butyl chloride has higher boiling point than n-butyl bromide

Reason $C - CI$ bond is more polar than $C - Br$ bond .

- A. If both assertion and reason are true and the reason is the correct explanation of the assertion .

B. If both assertion and reason are true but reason is not the correct explanation of the assertion .

C. If assertion is true but reason is false

D. If assertion is false but reason is true .

Answer: D

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8. Assertion: $CH_3Br + AgCN \rightarrow CH_3NC + AgBr$

Reason: CN is an ambident ion .

A. If both assertion and reason are true and the reason is the correct explanation of the assertion .

B. If both assertion and reason are true but reason is not the correct explanation of the assertion .

C. If assertion is true but reason is false

D. If assertion is false but reason is true .

Answer: B

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9. Statement-I: Nucleophilic substitution reaction on an optically active alkyl halide gives a mixture of enantiomers.

Because Statement-II: The reaction occurs by S_{N1} mechanism.

A. If both assertion and reason are true and the reason is the correct explanation of the assertion .

B. If both assertion and reason are true but reason is the correct explanation of the assertion .

C. If assertion is true but reason is false

D. If assertion is false but reason is true .

Answer: C

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10. Assertion: 1 – Butene on reaction with HBr in the presence of a peroxide produces 1 – bromo – butane

Reason: It involves the free radical mechanism.

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11. Assertion: p-Dichlorobenzene is less soluble in organic solvents than the corresponding o-isomer

Reason o-Dichlorobenzene is polar while p-dichlorobenzene is non-polar .

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12. Assertion: in comparison to ethyl chloride it is difficult to carry out nucleophilic on vinyl chloride

Reason: Vinyl group is electron-donating .

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13. Assertion: S_N2 reactions proceed with inversion of configuration

Reason: S_N2 reactions occur in one step .

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14. Assertion: Benzyl bromide when kept in acetone water produces benzyl alcohol.

Reason: The reaction follows S_N2 mechanism.

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15. Assertion: Alkyl iodide can be prepared by treating alkyl chloride//bromide with NaI in acetone

Reason NaCl//NaBr are soluble in acetone while NaI is not .

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16. Assertion: In the E_2 elimination $\beta - H$ and leaving group should be antiperiplanar

Reason In the E_2 elimination base always abstracts unhindered $\beta - H$.

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Aipmt Neet Questions

1. 2-chlorobutane obtained by chlorination of butane will be .

A. meso -form

B. d-form

C. racemic form

D. l-form

Answer: C

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2. Phenol reacts with $CHCl_3$ and $NaOH$ (at 340K) to give .

A. o-chlorophenol

B. salicylaldehyde

C. benzaldehyde

D. chlorobenzene

Answer: B



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3. Chloropicrin is obtained by the reaction of

- A. chlorine on picric acid
- B. nitric acid on chloroform
- C. steam on carbon tetrachloride
- D. nitric acid on chlorobenzene

Answer: B



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4. Chloroform when kept open is oxidised to substitution reaction ?

- A. O_2
- B. $COCl_2, HCl$

C. O_2 , C_2

D. none of the

Answer: B

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5. Which of the following is least reactive in a nucleophilic .

A. $(CH_3)_3CCI$

B. $CH_2 = CHCI$

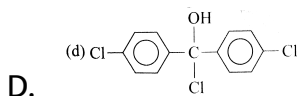
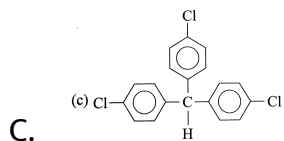
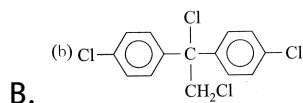
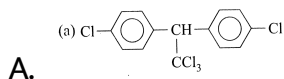
C. CH_3CH_2CI

D. $CH_2 = CHCH_2CI$

Answer: B

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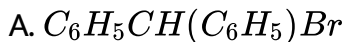
6. Trichloroacetaldehyde, CCl_3CHO reacts with chlorobenzene in presence of sulphuric acid and produces.

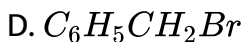


Answer: A

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7. Which one is most reactive towards S_N1 reactions ?

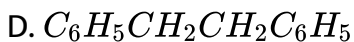
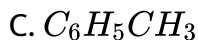
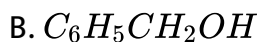
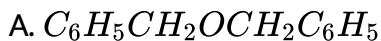
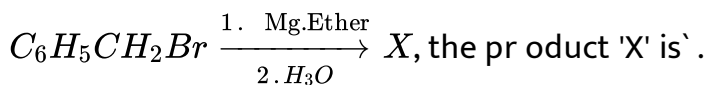




Answer: C

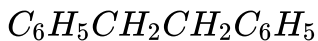
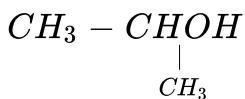
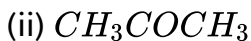
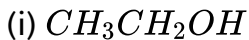
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8. In the following reaction



Answer: C

9. Following compounds are given



Which of the above compound (s) on being warmed with iodine solution and NaOH will give iodoform ?

A. (i),(iii)and(iv)

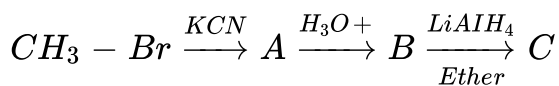
B. Only(ii)

C. (i),(ii) and(iii)

D. (i)and(iii)

Answer: C

10. In the following sequence of reaction



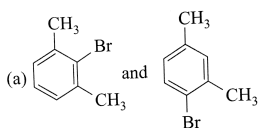
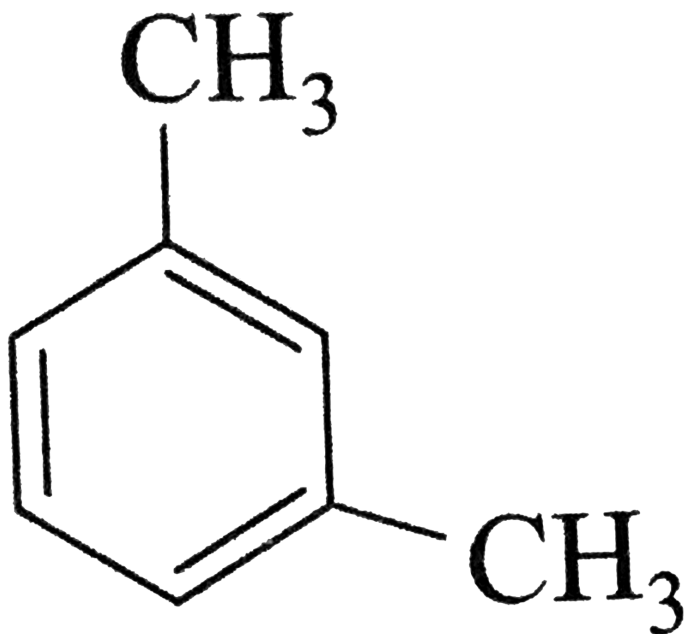
the end product is .

- A. acetaldehyde
- B. ethylalcohol
- C. acetone
- D. methane

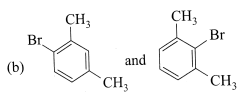
Answer: B

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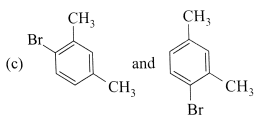
11. What products are formed when the following compounds are treated with Br_2 in the presence of $FeBr_3$?



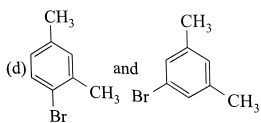
A.



B.



C.



D.

Answer: C



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12. In an SN_1 reaction on chiral centers there is .

A. 100 % retention

B. 100 % inversion

C. 100 % racemization

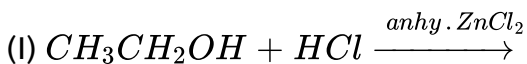
D. inversion more than retention leading to partial racemization .

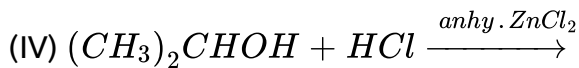
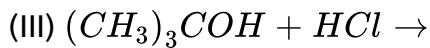
Answer: C



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13. Which of the following reaction(s) can be used for the preparation of alkyl halides?



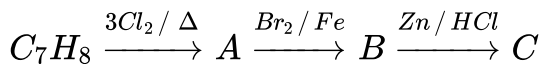


- A. (IV) only
- B. (III) and (IV) only
- C. (I) and (IV) only
- D. (I) and (II) only

Answer: C

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14. The compound C_7H_8 undergoes the following reactions :



The product 'C' is

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1. $C_3H_8 + CI_2 \xrightarrow{\text{Light}} C_3H_7CI + HCI$ is an example of which of the following types of reactions ?

- A. Substitution
- B. Elimination
- C. Addition
- D. Rearrangement

Answer: A



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2. When ethyl alcohol and KI reacted in presence of Na_2CO_3 yellow crystals of ...are formed ? .

A. CHI_3

B. CH_3I

C. CH_2I_2

D. C_2H_5I

Answer: A

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3. Diethyl ether on heating with conc. HI gives two moles of:

A. Ethanol

B. Iodoform

C. Ethyl iodide

D. Methyl iodide

Answer: C



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4. Acetone is mixed with bleaching powder to give

A. chloroform

B. Acetaldehyde

C. ethano1

D. phosgene

Answer: A



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5. The product formed on reation of ethyl alcohol with bleaching powder is .

A. $CHCl_3$

B. CCl_3CHO

C. CH_3COCH_3

D. CH_3CHO

Answer: A

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

A. Diethyl amine

B. ethane

C. Tetraethyl ammonium chloride

D. methyl amine

Answer: C

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7. The bad smelling substance formed by the action of alcoholic caustic potash on chloroform and aniline is .

A. phenyl isocyanide

B. nitrobenzene

C. phenyl cyanide

D. phenyl isocyanate

Answer: A

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8. 1-chlorobutane reacts with alcoholic KOH to form

A. 1-butane

B. 2-butane

C. 1-butano1

D. 2-butano1

Answer: A

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9. When chloroform is exposed to air and sunlight it gives

A. carbon tetrachloride

B. carbonyl chloride

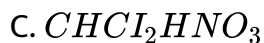
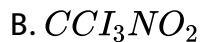
C. mustard gas

D. lewsite

Answer: B

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10. When chloroform is treated with conc HNO_3 it gives



D. None of these

Answer: B

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11. A sample of chloroform being used as anaesthetic is tested by .

A. Fehling solution

B. Ammoniacal Cu_2Cl_2

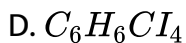
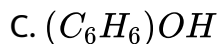
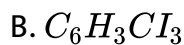
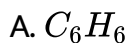
C. $AgNO_3$ solution

D. $AgNO_3$ solution after boiling with alcoholic KOH solution .

Answer: C::D

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12. $C_6H_6Cl_6$ on treatment with alcoholic KOH yields .



Answer: B

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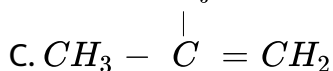
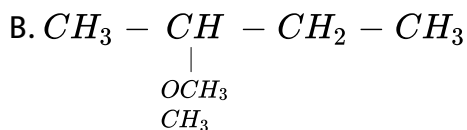
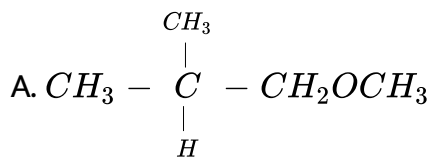
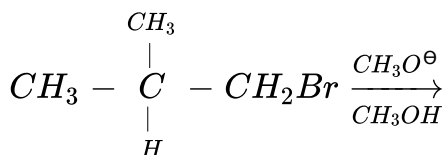
13. Among the following, one which reacts most readily with ethanol is

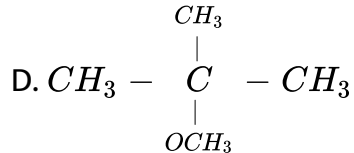
- A. p-nitrobenzyl bromide
- B. p-chlorobenzyl bromide
- C. p-methoxybenzyl bromide
- D. p-methylbenzyl bromide

Answer: C

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14. The major product formed in the reaction is:

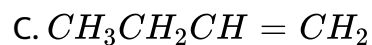
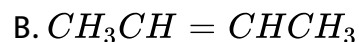




Answer: D

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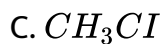
15. The major product obtained on treatment of $CH_3CH_2CH(F)CH_3$ with CH_3O^- / CH_3OH is .



Answer: B

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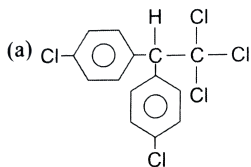
16. Which of the following is liquid at room temperature



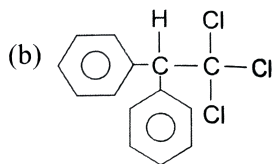
Answer: A

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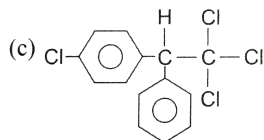
17. Which one of the following is the correct formula of dichlorodiphenyl trichloroethane ? .



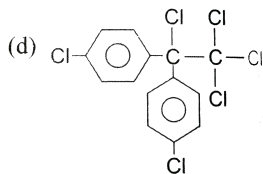
A.



B.



C.



D.

Answer: A

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18. Which of the following is used in fire extinguishersb ?

A. CH_4

B. $CHCl_3$

C. CH_2Cl_2

D. CCl_4

Answer: D

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19. Which of the following is an anaesthetic

A. C_2H_4

B. $CHCl_3$

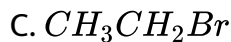
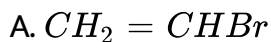
C. CH_3Cl

D. C_2H_5OH

Answer: B

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20. Among the following the most reactive alcoholic KOH is .

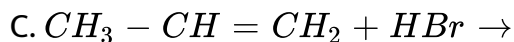
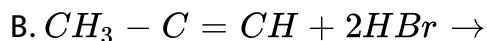


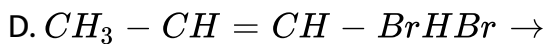
Answer: D

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21. Which of the following reactions will yield 2, 2 – dibromopropane

?

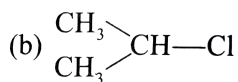
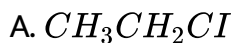




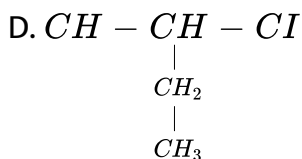
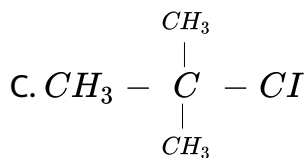
Answer: B

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22. SN^1 reaction is faster in



B.



Answer: C

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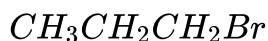
23. (*R*)-2-iodobutane is treated with NaI in acetone and allowed to stand to stand for a long time. The product eventually formed is .

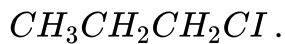
- A. (*R*)-2-iodobutane
- B. (*S*)-2-iodobutane
- C. (\pm)-2-iodobutane
- D. (\pm) - 2-iodobutane

Answer: B

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24. Decreasing order of reactivity in Williamson synthesis of the following .





A. $CH_3CH_2CH_2Cl$

B. $CH_2=CHCH_2Cl$

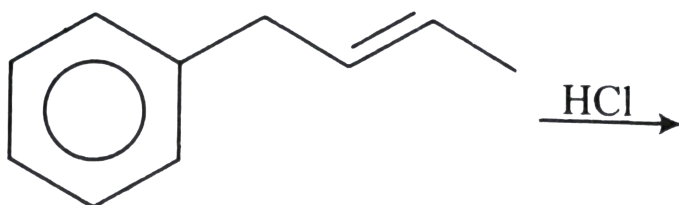
C. $CH_3CH_2CH_2Cl$

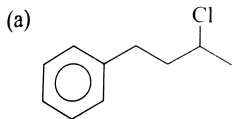
D. $CH_2=CHCH_2Cl$

Answer: A

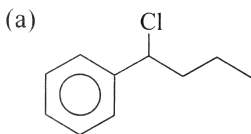
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25. Complete the following reaction

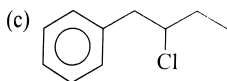




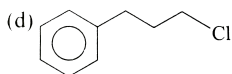
A.



B.



C.



D.

Answer: B

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Assertion Reasoning Questions

1. Assertion: Bromobenzene upon reaction with Br_2/Fe gives 1,4-dibromobenzene as the major product

Reason In bromobenzene the inductive effect of the bromo group is more dominant than the mesomeric effect in directing the incoming electrophile .

- A. If the the assertion and reason are true and reason is a true explanation of the assertion .
- B. If both assertion and reason are true but reason is not the correct explanation of the assertion .
- C. If the assertion is true but reason is false
- D. If assertion is false but reason is true .

Answer: C



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2. Assertion: CCl_4 and H_2O are immiscible .

Reason : CCl_4 is a polar solvent.

- A. If the the assertion and reason are true and reason is a true explanation of the assertion .
- B. If both assertion and reason are true but reason is the correct explanation of the assertion .
- C. If the assertion is true but reason is false
- D. If assertion is false but reason is true .

Answer: C

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3. Assertion: Styrene on reaction with HBr gives 1-bromo-1-phenylethane .

Reason: Benzyl radical is more stable than alkyl radical .

- A. If the the assertion and reason are true and reason is a true explanation of the assertion .

B. If both assertion and reason are true but reason is not the correct explanation of the assertion .

C. If the assertion is true but reason is false

D. If assertion is false but reason is true .

Answer: C

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4. Assertion: Aryl undergoes nucleophilic substitution with ease

Reason The carbon halogen bond in aryl halides has partial double bond character .

A. If the the assertion and reason are true and reason is a true explanation of the assertion .

B. If both assertion and reason are true but reason is not the correct explanation of the assertion .

C. If the assertion is true but reason is true

D. If assertion is false but reason is true .

Answer: D

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5. Assertion: CHI_3 gives a precipitate with $AgNO_3$ solution on heating but $CHCl_3$ not

Reason: C-I bond is quite weak as compared to C – Cl bond .

A. If the the assertion and reason are true and reason is a true explanation of the assertion .

B. If both assertion and reason are true but reason is not the correct explanation of the assertion .

C. If the assertion is true but reason is true

D. If assertion is false but reason is true .

Answer: A

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6. Assertion: The reactivity order for S_N1 reaction is $Ar_3CX > Ar_2CHX > ArCH_2X$

Reason: More is the stability of carbocation more readily moment than cis 2-chloro propene .

Reason: More is stability of carbocation more readily it is formed .

- A. If the the assertion and reason are true and reason is a true explanation of the assertion .
- B. If both assertion and reason are true but reason is not the correct explanation of the assertion .
- C. If the assertion is true but reason is true
- D. If assertion is false but reason is true .

Answer: A

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7. Assertion: Trans-2-chloro propene has higher dipole moment than cis-2-chloro propene

Reason The resultant vector sum of all the vectors in trans-2-chloro propene is more than cis-2-chloro propene .

- A. If the the assertion and reason are true and reason is a true explanation of the assertion .
- B. If both assertion and reason are true but reason is not the correct explanation of the assertion .
- C. If the assertion is true but reason is true
- D. If assertion is false but reason is true .

Answer: A



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8. Assertion (A): Iodine is more soluble in CCl_4 than in water.

Reason(R): Non-polar solutes are more soluble in non-polar solvents.

- A. If the the assertion and reason are true and reason is a true explanation of the assertion .
- B. If both assertion and reason are true but reason is the correct explanation of the assertion .
- C. If the assertion is true but reason is true
- D. If assertion is false but reason is true .

Answer: A



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9. Chlorination of allylic hydrogen is difficult than vinylic hydrogen.

Allyl radical is stabilised by resonance.

A. If the the assertion and reason are true and reason is a true explanation of the assertion .

B. If both assertion and reason are true but reason is the correct explanation of the assertion .

C. If the assertion is true but reason is true

D. If assertion is false but reason is true .

Answer: D



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Section D Chapter End Test

1. The product of the reaction of alcoholic silver nitrite with ethyl bromide is :

- A. Nitroethane
- B. Nitroethane and ethyl nitrite
- C. Ethylnitrite
- D. Ethane

Answer: A



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2. Among the following, the molecule with the highest dipole moment is :

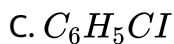
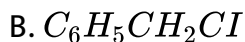
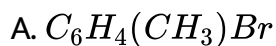
- A. CH_3Cl
- B. CH_2Cl_2



Answer: A

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3. An organic halide is shaken with aqueous NaOH followed by the addition of dil HNO_3 and silver nit rate solution gave white ppt The substane can be .



D. None of these

Answer: B



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4. When CHCl_3 is boiled with NaOH It gives .

- A. Formic acid
- B. Trihydroxy methane
- C. Acetylene
- D. Sodium formate

Answer: B

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5. The hybridization state of carbon atoms in the product formed by the reactions of ethyl chloride with aqueous potassium hydroxide is .

- A. sp

B. sp^2

C. sp^3

D. sp^3d

Answer: C

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6. Which of the following compounds does not undergo nucleophilic substitution reactions ?

A. Vinyl chloride

B. Ethyl bromide

C. Benzyl chloride

D. Isopropyl chloride

Answer: A

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

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

Answer: D

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8. Among the following one with the highest percentage of chlorin is

A. Chloral

B. Pyrene

C. PVC

D. Gammexene

Answer: B

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9. 2-bromopentane is heated with potassium ethoxide in ethanol

The major product obtained is .

A. Pentene -1

B. cis pentene -2

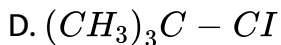
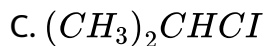
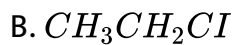
C. trans pentene-2

D. 2-ethoxypentane

Answer: C

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10. In which alkyl halide SN^2 mechanism is favoured maximum



Answer: A

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11. Which conformation of $C_6H_6Cl_6$ is most powerful insecticide ?

A. aaeeee

B. aaaeee

C. aaaaae

D. aaaaaa

Answer: B



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12. The odd decomposition of carbon chlorine bond from

A. Two free ions

B. Two-carbonium ion

C. Two carbanion

D. A cation and anion

Answer: D



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13. Which of the following statements about benzyl chloride is incorrect ?

- A. It is less reactive than alkyl halides
- B. It can be oxidised to benzaldehyde by boiling with copper nitrate solution .
- C. It is a lachrymatory liquid and answers Beilstein s test
- D. It gives a white precipitate with alcoholic silver nitrate

Answer: A



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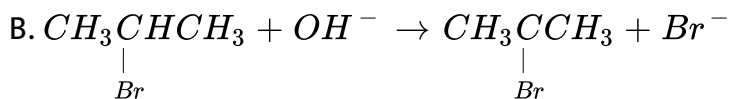
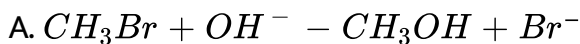
14. An isomer of $C_3H_6Cl_2$ on boiling with aqueous KOH gives acetone Hence the isomer is

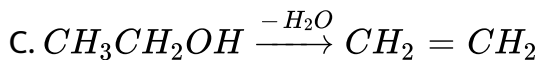
- A. 2,2-dichloropropane
- B. 1,2-dichloropropane
- C. 1,1-dichloropropane
- D. 1,3-dichloropropane

Answer: A

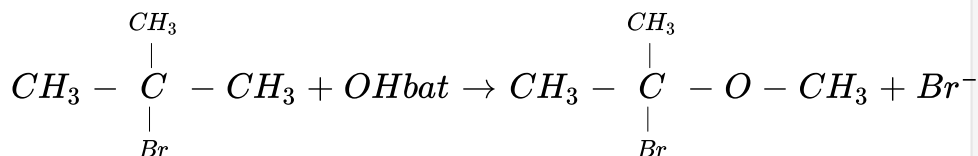
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15. Which of the following is the example of SN^2 reaction





D.

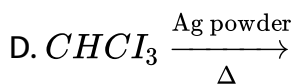
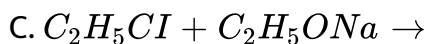
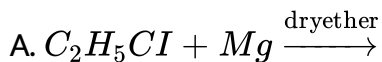


Answer: A

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16. Wurtz reaction of methyl iodide yields an organic compound X

Which one of the following reactions also yields X .

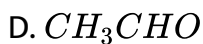
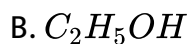


Answer: B



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17. Ethyl orthoformate is formed by heating with sodium ethoxide .



Answer: A



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18. Freon (dichlorodifluoro methane) is used .

A. As local anaesthetic

B. For dissolving impurities in metallurgical process .

C. In refrigerator

D. In printing industry

Answer: C

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

A. Diethyl amine

B. Ethane

C. Tetraethyl ammonium chloride

D. Methyl mine

Answer: C

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20. On treating a mixture of two alkyl halides with sodium metal in dry ether, 2-methylpropane was obtained. The alkyl halides are

- A. 2-chloropropane and chloromethane
- B. 2-chloropropane and chloromethane
- C. Chloromethane and chloromethane
- D. Chloromethane and 1-chloromethane

Answer: A



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21. When but-3-en-2-ol reacts with $aqHBr$, we get

- A. 3-bromobut-1-ene
- B. 1-bromobut-2-ene
- C. A mixture of both a and b

D. 2-bromobut-2-ene

Answer: C

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22. Which of these do not form Grignard reagent ?

A. CH_3F

B. CH_3Cl

C. CH_3Br

D. CH_3I

Answer: A

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23. An organic compound $A(C_4H_6Cl)$ on reaction with Na/diethyl ether gives a hydrocarbon which on monochlorination gives only one chloro derivative A is .

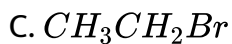
- A. t-butyl chloride
- B. s-butyl chloride
- C. Isobutyl chloride
- D. n-butyl chloride

Answer: A

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24. Among the following the most reactive alcoholic KOH is .

- A. $CH_3 - Cl$
- B. $CH_3 - CH_2 - Cl$



Answer: D

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25. Which of the following possess highest m.pt .

A. Chlorobenzene

B. o-dibromobenzene

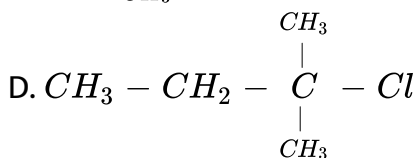
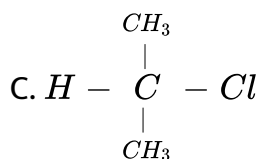
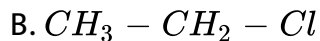
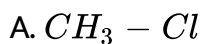
C. m-dibromobenzene

D. p-dibromobenzene

Answer: D

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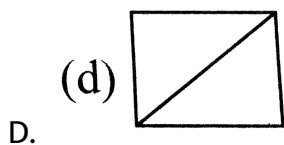
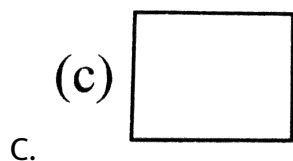
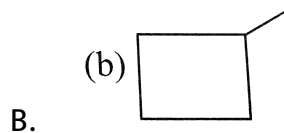
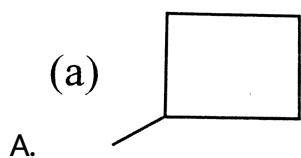
26. Which chlorine atom is more electronegative in the following ?



Answer: D

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27. What would be the product formed when 1-bromo-3-chlorocyclobutane reacts with two equivalents of metallic sodium in ether ? .



Answer: D

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28. Assertion: Alkyl halides form alkenes when heated above 300°C

Reason $\text{C}_2\text{H}_5\text{I}$ reacts slowly with strong base when compared to $\text{C}_2\text{D}_5\text{I}$.

- A. If both assertion and reason are true and the reason is the correct explanation of the assertion .
- B. If both assertion and reason are true but reason is not the correct explanation of the assertion .
- C. If assertion is true but reason is false
- D. If assertion is false but reason is true .

Answer: C

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29. Statement-I: Nucleophilic substitution reaction on an optically active alkyl halide gives a mixture of enantiomers.

Statement-II: The reaction occurs by S_{N1} mechanism.

- A. If both assertion and reason are true and the reason is the correct explanation of the assertion .

B. If both assertion and reason are true but reason is not the correct explanation of the assertion .

C. If assertion is true but reason is false

D. If assertion is false but reason is true .

Answer: A

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30. Assertion Addition of Br_2 to cis-but-2-ene is stereoselective

S_N2 reactions are stereospecific as well as stereoselective .

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