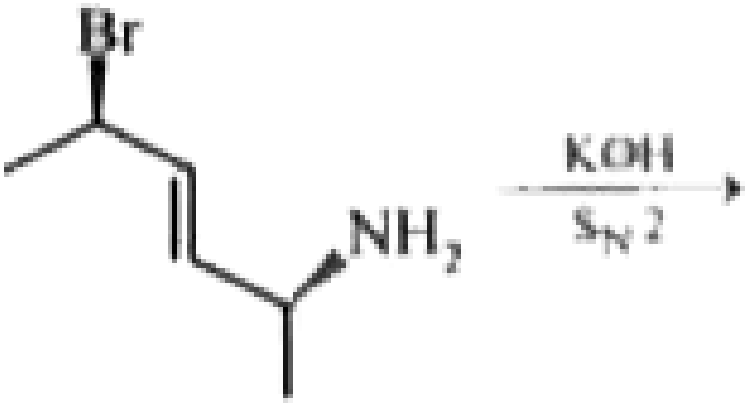
CHEMISTRY

BOOKS - DISHA PUBLICATION CHEMISTRY (HINGLISH)

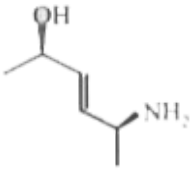
HALOALKANES AND HALOARENES

Jee Main 5 Years At A Glance

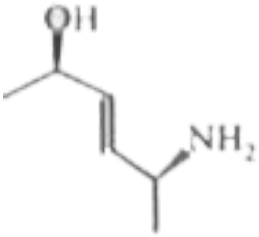
1. The major product of the following reaction is:



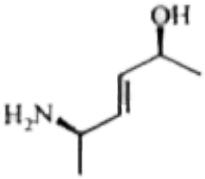
A.



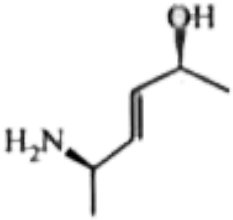
B.



C.



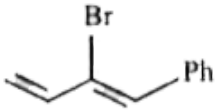
D.

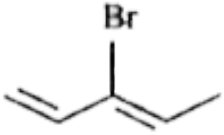


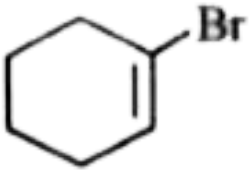
Answer: C

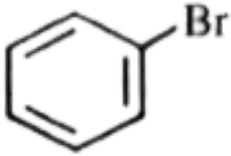
View Text Solution

2. Which of the following will most readily give the dehydrohalogenation product ?

A. 

B. 

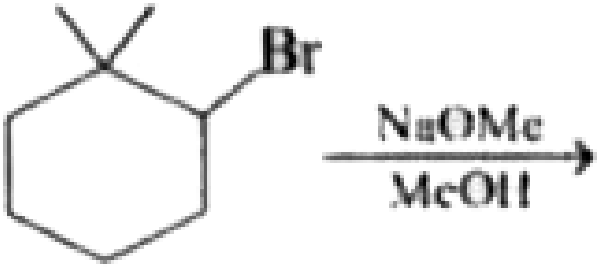
C. 

D. 

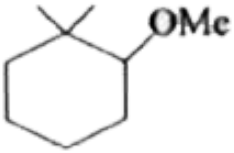
Answer: A

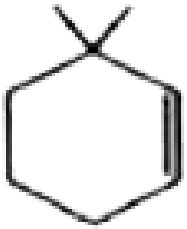
Watch Video Solution

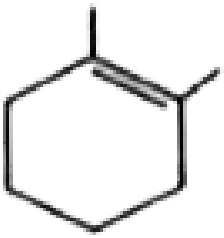
3. The major product of the following reaction is :

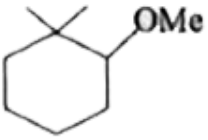


$\xrightarrow[MeOH]{NaOMe}$

A. 

B. 

C. 

D. 

Answer: B

Watch Video Solution

4. The major product of the following reaction is:

$$CH_3\underset{Br}{\underset{|}{C}}HCH_2\underset{Br}{\underset{|}{C}}HCH_2CH_3 \xrightarrow[heat]{KOH\,,CH_3OH}$$

A. $CH_2 = CHCH_2CH = CHCH_3$

B. $CH_2 = CHCH = CHCH_2CH_3$

C. $CH_3CH = C = CHCH_2CH_3$

D. $CH_3CH = CH - CH = CHCH_3$

Answer: D

Watch Video Solution

5. The major product of the following reaction is :

$$C_6H_5CH_2-\underset{\underset{Br}{|}}{\overset{\overset{CH_3}{|}}{C}}-CH_2-CH_3 \xrightarrow[C_2H_5OH]{C_2H_5ONa}$$

A. $C_6H_5CH_2-\underset{\underset{OC_2H_5}{|}}{\overset{\overset{CH_3}{|}}{C}}-CH_2-CH_3$

B. $C_6H_5CH_2=\underset{\underset{CH_3}{|}}{C}-CH_2-CH_3$

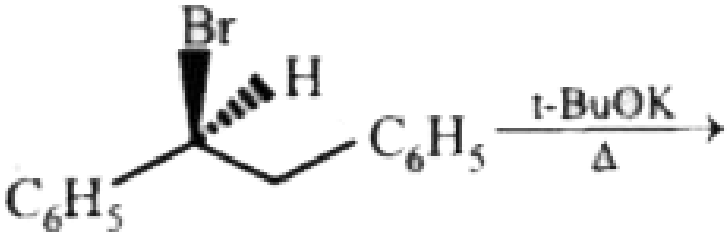
C. $C_6H_5CH_2-\underset{\underset{CH_3}{|}}{C}=CHCH_3$

D. $C_6H_5CH_2-\underset{\underset{CH_2CH_3}{|}}{C}=CH_2$

Answer: B

Watch Video Solution

6. The major product obtained in the following reaction is :



$\xrightarrow[\Delta]{t-BuOK}$

A. $(\pm)C_6H_5CH(O^tBu)CH_2C_6H_5$

B. $C_6H_5CH=CHC_6H_5$

C. $(+)C_6H_5CH(O^tBu)CH_2C_6H_5$

D. $(-)C_6H_5CH(O^tBu)CH_2C_6H_5$

Answer: B

Watch Video Solution

7. The increasing order of reactivity of the following halides for the S_N1 reaction is

I.$CH_3CH(CI)CH_2CH_3$

II. $CH_3CH_2CH_2Cl$

III. $p. - H_3CO - C_6H_4 - CH_2Cl$

A. $(III) < (II) < (I)$

B. $(II) < (I) < (III)$

C. $(I) < (III) < (II)$

D. $(II) < (III) < (I)$

Answer: B

Watch Video Solution

8. Which one of the following reagents is not suitable for the elimination reaction?

A. NaI/acetone

B. NaOEt/EtOH

C. $NaO\frac{H}{H_2}O$

D. $NaO\frac{H}{H_2}O - EtOH$

Answer: A

Watch Video Solution

9. 2-chloro-2-methylpentane on reaction with sodium methoxide in methanol yields (A) $C_2H_5CH_2\overset{CH_3}{\underset{CH_3}{C}} - OCH_3$

(B) $C_2H_5CH_2\underset{CH_3}{C} = CH_2$

(C) $C_2H_5CH = \underset{CH_3}{C} - CH_3$

A. (iii) only

B. (i) and (ii)

C. All of these

D. (i) and (iii)

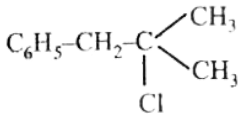
Answer: A

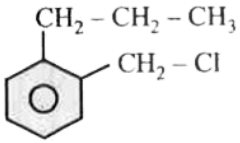
Watch Video Solution

10. A compound A with molecular formula C H Cl gives a white precipitate on adding silver nitrate solution. A on reacting with alcoholic KOH gives compound B as the main product. B on ozonolysis gives C and D.C gives Cannizaro reaction but not aldol condensation. D gives aldol condensation but not Cannizaro reaction. A is :

A. $C_6H_5 - CH_2 - CH_2 - CH_2 - CH_2 - Cl$

B. $C_6H_5 - CH_2 - CH_2 - \underset{\underset{Cl}{|}}{CH} - CH_3$

C. 

D. 

Answer: C

View Text Solution

11. The synthesis of alkyl fluoride is best accomplished by:

A. Finkelstein reaction

B. Swarts reaction

C. Free radical fluorination

D. Sandmeyer's reaction

Answer: B

Watch Video Solution

12. For the compounds

$CH_3Cl, CH_3Br, CH_3I \text{and} CH_3F$

the correct order of increasing C-halogen bond length is:

A. $CH_3F < CH_3Cl < CH_3Br < CH_3I$

B. $CH_3F < CH_3Br < CH_3Cl < CH_3I$

C. $CH_3F < CH_3I < CH_3Br < CH_3Cl$

D. $CH_3Cl < CH_3Br < CH_3F < CH_3I$

Answer: A

Watch Video Solution

13. In a S_{N^2} substitution reaction of the type

$$R - Br + Cl^- \xrightarrow{\text{DMF}} R - Cl + Br^-$$

Which one of the following has the highest relative rate?

A. $C_6H_5CHC_6H_5Br$

B. $C_6H_5CH_2Br$

C. $C_6H_5CHCH_3Br$

D. $C_6H_5CCH_3C_6H_5Br$

Answer: C

Watch Video Solution

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

A. Acetylene

B. Ethene

C. 2-Butyne

D. 2 - Butene

Answer: C

Watch Video Solution

15. In S_N2 reactions, the correct order of reactivity for the following compounds:

$CH_3Cl, CH_3CH_2Cl, (CH_3)_2CHCl \text{and} (CH_3)_3CCl$ is :

A. $CH_3Cl > (CH_3)_2CHCl > CH_3CH_2Cl > (CH_3)_3\mathbb{C}l$

B. $CH_3Cl > CH_3CH_2Cl > (CH_3)_2CHCl > (CH_3)_3\mathbb{C}l$

C. $CH_3CH_2Cl > CH_3Cl > (CH_3)_2CHCl > (CH_3)_3\mathbb{C}l$

D. $(CH_3)_2CHCl > CH_3CH_2Cl > CH_3Cl > (CH_3)_3\mathbb{C}l$

Answer: B

Watch Video Solution

Exercise 1 Concept Builder Topicwise Topic 1 General Characteristics Of Haloakanes And Halorenes

1. When two halogen atoms are attached to same carbon atom then it is :

A. vic-dihalide

B. gem-dihalide

C. α, ω-halide

D. α, β-halide

Answer: B

Watch Video Solution

2. Which of the following is not an allylic halide?

A. 4-Bromopent-2-ene

B. 3-Brano-2-methylbut-1-ene

C. 1-Bromobut-2-ene

D. 4-Bromobut-l-ene

Answer: D

Watch Video Solution

3. The compound which contains all the four 1°,2°, 3° and 4° carbon atoms is

A. 2, 3-dimethylpentane

B. 2,3,3-trimethylpentane

C. 2,3,4-trimethylpentane

D. 3,3-dimethylpentane

Answer: B

Watch Video Solution

4. Benzene hexachloride is:-

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

B. 1,1.1,6,6, 6-hexachlorocyclohexae

C. 1,6-phenyl-1, 6-chlorohexane

D. 1, 1-phenyl-6, 6-chlorohexane

Answer: A

Watch Video Solution

5. In the following group :

$-OAc(I),\ -OMe(II),\ -OSO_2(III),\ -OSO_2CF_3(IV)$

The order of leaving group ability is :

A. IgtIIgtIIIgtIV

B. IV gt III gt I gt II

C. III gt II gt I gt IV

D. II gt III gt IV gt I

Answer: B

Watch Video Solution

6. In each of the following groups, which is the strongest (best) nuclcophile?

A. (I),3,(II),3,(III),2

B. (I),2,(II),1,(III),3

C. (I),1,(II),2,(III),1

D. (I),3,(II),1,(III),3

Answer: D

View Text Solution

7. The total number of acyclic isomers, including the stereoisomers, with formula C_4H_7Cl is

A. 11

B. 12

C. 9

D. 10

Answer: B

Watch Video Solution

8. Identify the set of reagents/ reaction condition 'X' and 'Y' in the following set of transformations :

$$CH_3 - CH_2 - CH_2Br \xrightarrow{X} \text{Product} \xrightarrow{Y} CH_3 - \underset{\underset{Br}{|}}{CH} - CH_3$$

A. X=aq. NaOH,20° C,Y=HBr//acetic acid,20° C

B. X=conc.alc.NaOH,80° C , Y=HBr//acetic acid,20° C

C. X=dil. aq. NaOH,20° C , Y=$Br_2 / CHCl_3$,0° C

D. X=conc.alc.NaOH,80° C , Y=$Br_2 / CHCl_3$, 0° C

Answer: B

Watch Video Solution

9. 2-Phenyl-2-hexanol can be prepared by Grignard synthesis The pair of compounds giving the desired product is

A. 

B. 

C. 

D. None of these

Answer: A

View Text Solution

Exercise 1 Concept Builder Topicwise Topic 2 Preparation And Properties Of Haloalkanes

1. Arrange the following halides in the decreasing order of S_N1 reactivity:

$CH_3\underset{(I)}{C}H_2CH_2Cl\,CH_2=CH\underset{(II)}{C}H(Cl)CH_3,$

$CH_3CH_2\underset{III}{C}H(Cl)CH_3$

A. I gt II gt III

B. II gt I gt III

C. II gt III gt I

D. III gt II gt I

Answer: C

Watch Video Solution

2. Which resonating structure of vinyl chloride is least stable :-

A. $CH_2 = CH_2 + Cl_2 \xrightarrow{600^\circ C}$

B. $ClCH_2 - CH_2Cl \xrightarrow[ethanol]{KOH}$

C. $CH \equiv CH + HCl \xrightarrow{Hg^{2+}}$

D. All of these

Answer: D

Watch Video Solution

3. Comment on the following reactions

(i) $CH_3OH + NaCl \rightarrow$ (ii) $CH_3OH + HCl \rightarrow$

A. Both reactions take place easily.

B. Only reaction (ii) takes place.

C. Reaction (ii) takes places faster than (i).

D. None of the two reactions in possible.

Answer: B

Watch Video Solution

4. When chlorine is passed through propene at $400^\circ C$ which of the following is formed?

A. PVC

B. Allyi chloride

C. Alkyl chloride

D. 1,2-Dichlorocthane

Answer: B

Watch Video Solution

5. When $CH_3CH_2CHCl_2$ is treated with $NaNH_2$, the product formed is

A. $CH_3 - CH = CH_2$

B. $CH_3 - C \equiv CH$

C. 

D. 

Answer: B

Watch Video Solution

6. Reaction of $t - butyl$ bromide with sodium methoxide produces

A. iso-butane

B. iso-butylene

C. tert-butyl methyl ether

D. sodium tert butoxide

Answer: B

Watch Video Solution

7. Ethylene dibromide on heating with metallic sodium in ether yields.

A. ethene

B. ethyne

C. 2-butene

D. 1-butene

Answer: C

Watch Video Solution

8. Vinyl chloride undergoes

A. only addition reactions

B. only elimination reactions

C. substitution reactions

D. both (a) and (b)

Answer: D

Watch Video Solution

9. $C_2H_5Br \xrightarrow{AgCN} X \xrightarrow[Zn-Hg/HCI]{\text{Reduction}} Y$, Here, Y is:-

A. n-propyl amine

B. isopropylamine

C. ethylumnine

D. ethylmethyl amine

Answer: D

Watch Video Solution

10. 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: B

Watch Video Solution

11. During debromination of meso — dibromobutane, the major compound formed is

A. n-butane

B. 1-butene

C. cis-2-butene

D. trans-2-butene

Answer: D

Watch Video Solution

12. Halogenation of alkanes is

A. a reductive process

B. an oxidative process

C. an isothermal process

D. an endothermal process

Answer: B

Watch Video Solution

13. Which of the following reagent produces pure alkyl halides when heated with alcohols?

A. PCl_5

B. PCl_3

C. $SOCl_2$

D. dry HCl

Answer: C

Watch Video Solution

14. Hydrocarbon $(CH_3)_3CH$ undergoes reaction with Br_2 and CI_2 in the presence of sunlight, if the reaction with Cl is highly reactive and that

with Br is highly selective so no.of possible products respectively is (are)

A. 2,2

B. 2,1

C. 1,2

D. 1,1

Answer: B

Watch Video Solution

15. To prepare 3-ethylpentan-3-ol, the reactants needed are

A. $CH_3CH_2MgBr + CH_3COCH_2CH_3$

B. $CH_3MgBr + CH_3CH_2CH_2COCH_2CH_3$

C. $CH_3CH_2MgBr + CH_3CH_2COCH_2CH_3$

D. $CH_3CH_2CH_2MgBr + CH_3COCH_2CH_3$

Answer: C

Watch Video Solution

16. The rate of S_N2 reaction is maximum when the solvent is

A. 

B. 

C. 

D. 

Answer: C

Watch Video Solution

17. Identify Z, in the following reaction.

$$C_2H_5l \xrightarrow{\text{alc. KOH}} X \xrightarrow{Br_2} Y \xrightarrow{\text{KCN}} Z$$

A. CH_3CH_2CN

B. $N\mathbb{C}H_2 - CH_2CN$

C. $BrCH_2 - CH_2CN$

D. $BrCH = CHCN$

Answer: B

Watch Video Solution

18. The compound most reactive towards S_N1 reaction is

A. $MeCOCH_2Cl$

B. $MeOCH_2Cl$

C. $C_6H_5CH_2CH_2Cl$

D. 

Answer: B

View Text Solution

19.

Which of the following is correct ?

A. A on reaction with aq KOH gives $HOCH_2CH_2COOK$

B. B can be resolved into d-and l-forms

C. Both (a) and (b)

D. Neither (a) nor (b)

Answer: C

View Text Solution

20. Which of the following order is not correct?

A. $MeBr > Me_2CHBr > Me_3CBr > Et_3CBr(S_N2)$

B.

$$PhCH_2Br > PhCHBrMe > PhCBrMe_2 > PhCBrMePh(S_N1)$$

C. $MeI > MeBr > MeCl > MeF(S_N2)$

D. All the above are correct

Answer: B

View Text Solution

21. Which of the following is an example of S_N2 reaction?

A. $CH_3Br + OH^- \rightarrow CH_3OH + Br^-$

B. $CH_3 - \underset{\underset{Br}{|}}{CH} - CH_3OH^- \rightarrow CH_3 - \underset{CH_3}{-} \underset{\underset{OH}{|}}{CH} - CH_3$

C. $CH_3CH_2OH \xrightarrow{-H_2O} CH_2 = CH_2$

D. $(CH_3)_3C - Br + OH^- \rightarrow (CH_3)_3COH + Br^-$

Answer: A

Watch Video Solution

22. Which of the following is not possible ?

A. $ICH_2COOH_NaCl \xrightarrow{\text{acetone}} ClCH_2COOH + Nal$

B. $ClCH_2COOH + Nal \xrightarrow{\text{acetone}} ICH_2COOH + NaCl$

C. Both (a) and (b)

D. Neither (a) nor (b)

Answer: A

Watch Video Solution

23. Which of the statement(s) is/are true, regarding following reaction?

(i) The reaction involves the formation of transition state

(ii) Higher the nucleophilic character of the nuclcophile, faster will be the reaction.

(iii) The product is always optically inactive

A. (ii)

B. (ii) and (iii)

C. All the three

D. None of the three

Answer: B

View Text Solution

24. $(CH_3)_3\mathbb{C}l \xrightarrow{NaCl} A \xrightarrow{dil.H_2SO_4} B$Compound B is

A. $(CH)_3COOOH$

B. $(CH_3)_3COH$

C. $(CH_3)_3COC(CH_3)_3$

D. All the three

Answer: D

Watch Video Solution

25.

A. 3-Chloropropene

B. 2-Chloropropene

C. 1-Chloropropene

D. 1,2-Dichloropropane

Answer: A

View Text Solution

26. A solution of (+)2-chloro-2-phenylethane in toluene racemises slowly in the presence of small amount of $SbCI_5$ due to the formation of-

A. carbanion

B. carbene

C. free-radical

D. carbocation

Answer: D

Watch Video Solution

27. Primary alkyl halide C_4H_9Br (a) reacted with alcoholic KOH to give compound (b). Compound (b) is reacted with HBr to give (c) which is an isomer of (a). When (a) is reacted with sodium metal it gives compound (d), C_8H_{18} which is different from the compound formed when n-butyl bromide is reacted with sodium. Give the structural formula of (a) and write the equations for all the reactions.

A. $CH_3CH_2CH_2CH_2Br$

B. $CH_3\underset{\underset{CH_3}{|}}{C}HCH_2Br$

C. $(CH_3)_3CBr$

D. None of above

Answer: B

Watch Video Solution

28. Which of the following statements is wrong?

A. Ethyl chloride on reduction with Zn-Cu couple and alcohol gives ethane.

B. The reaction of methyl magnesium bromide with acetone gives butan-2-ol.

C. Alkyl halides follow the following reactivity sequence on reaction with alkenes.

D. R-I gt R-Br gt R-C1 gt R-F

Answer: B

Watch Video Solution

29. An alkyl halide with molecular formula $C_6H_{13}Br$ on dehyrohalogenation gives two isomeric alkenes X and Y with molecular

formula C_6H_{12}. On reductive ozonolysis X and Y gives four compounds CH_3COCH_3, CH_3CH_2CHO and $(CH_3)_2CHCHO$. The alkyl halide is

A. 2-bromohexane

B. 2,2-dimethyl-1-bromobutane

C. 4-bromo-2-methylpentane

D. 3-bromo-2-methylpentane

Answer: D

Watch Video Solution

30. Finkelstein reaction for the preparation of alkyl iodide is based upon the fact that:

A. Sodium iodide is soluble in methanol, while sodium chloride is insoluble in methanol.

B. Sodium iodide is solublc in methanol, while NaCl and NaBr are insoluble in mcthanol.

C. Sodium iodide is insolublc in methanol, while NaCl and NaBr are soluble.

D. The three halogens differ considerably in their electronegativity

Answer: B

View Text Solution

31. Dehydrohalogenation by strong base is slowest in

A. 

B. 

C. 

D. 

Answer: C

View Text Solution

32. Which of the following will not undergo nucleophilic substitution ?

A. II, III and IV

B. II and IV

C. III and IV

D. only IV

Answer: D

View Text Solution

33. Which of the following structure is more stable?

A. 

B. 

C. 

D. 

Answer: B

View Text Solution

34. 

A. 

B. 

C. Both

D. No reaction

Answer: C

View Text Solution

Exercise 1 Concept Builder Topicwise Topic 3 Preparation And Properties Of Halorenes

1. 

Which of the following is correct ?

A. A and B are same and Cis different.

B. A and C are same and B is different.

C. A Band C are same.

D. B and C are same and A is different.

Answer: C

View Text Solution

2. Benzene reacts with n-propyl chloride in the presence of anhydrous $AlCl_3$ to give predominantly

A. 3 - Propyl - 1 -chlorobenzene

B. n -Propylbenzene

C. Isopropylbenzene

D. No reaction occurs

Answer: C

Watch Video Solution

3. Silver benzoate reacts with bromine to form

A. 

B. 

C. 

D. C_6H_5Br

Answer: D

View Text Solution

4. 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

Watch Video Solution

5. The connect kinetic rate equation for the addition-elimination mechanism of nucleophilic aromatic substitution

A. rate = k [aryl halide][nucleophile]

B. rate = k [aryl halide]

C. rate = k [aryl halide]$[\text{nucleophile}]^2$

D. rate = k [nucleophile]

Answer: A

View Text Solution

6.

The regent R may be

CH_3CH_2MgBr CH_3CH_2Li

I II

$(CH_3CH_2)_2Cd$ $(CH_3CH_2)_2CuLi$

III IV

A. I or II

B. I or II or III

C. III or IV

D. Any of the four

Answer: C

View Text Solution

7. What is the product of the following reaction ?

A. N,N-dimethyl aniline

B. phenyl-lithium (C_6Hg_5Li)

C. para-chloro-N, N-dimethyl aniline

D. meta-chloro-N, N-dimethyl aniline

Answer: A

View Text Solution

Exercise 1 Concept Builder Topicwise Topic 4 Some Important Polyhalogen Compounds

1. Which one of the following is responsible for depletion of the ozone layer in the upper strata of the atmosphere?

A. Polytalogens

B. Ferrocene

C. Fullerenes

D. Freons

Answer: D

Watch Video Solution

2. Freon -12 is manufactured from tetrachloromethane by ,

A. insecticide

B. refrigerant

C. a solvent

D. a fire extinguisher

Answer: B

Watch Video Solution

3. In the laboratory, chloroform is prepared by the following method

A. distilling chloral hydrate with aqueous sodium hydroxide

B. heating ethanol with bleaching powder

C. heating acetone with bleaching powder

D. reducing carbon tetrachloride

Answer: A

Watch Video Solution

4. If chloroform is left open in air in the presence of sunlight, it gives

A. carbon tetrachloride

B. carbonyl chloride

C. mustard gas

D. lewisite

Answer: B

View Text Solution

5. The product formed by heating iodoform with KOH is:

A. HCHO

B. HCOOK

C. CH_3COOK

D. CH_3CHO

Answer: B

Watch Video Solution

6. Ethyl alcohol is used as a preservative for chloroform because it :

A. Prevents aerial oxidation of chloroform

B. Prevents decomposition of chloroform

C. Decomposes phosgene to CO and Cl_2

D. Removes phosgene by converting it to ethyl carbonate

Answer: D

View Text Solution

7. Chloropicrin is obtained by the reaction of

A. steam on carbon tetrachloride

B. nitric acid on chlorobenzene

C. chlorine on picric acid.

D. nitric acid on chloroform

Answer: D

View Text Solution

8. On warming with silver powder, chloroform is converted into

A. acetylene

B. hexachloroethane

C. 1,1,2,2-tetrachloroethane

D. ethylene

Answer: A

Watch Video Solution

9. $AgNO_3$ does not give precipitate with $CHCI_3$ because .

A. $CHCI_3$ does not ionise in water

B. $CHCl_3$ is insoluble in water

C. $AgNO_3$ is insoluble in $CHCI_3$

D. $CHCI_3$ is an organic compound

Answer: A

Watch Video Solution

10. $CHCl_3$ and KOH on heating with a compound form a bad smelling product compound is

A. C_2H_5CN

B. C_2H_5NC

C. C_2H_5OH

D. $C_2H_5NH_2$

Answer: B

Watch Video Solution

11. The compound which forms acetaldehyde when heated with dilute NaOH, is

A. 1, 1-dichloroethane

B. 1, 1, 1-trichloroethane

C. 1-chloroethane

D. 1,2-dichloroethane

Answer: A

Watch Video Solution

12. Which one of the following has antiseptic property ?

A. Dichloromethane

B. Trifluoromethane

C. Triiodomethane

D. Tetrachloromethane

Answer: C

Watch Video Solution

13. The major product formed when 1, 1, 1-trichloro-propane is treated with aqueous potassium hydroxide is:

A. Propyne

B. 1-Propanol

C. 2-Propano

D. Propionic acid

Answer: D

Watch Video Solution

Exercise 2 Concept Applicator

1. The decreasing order of reactivity of meta-nitrobrombenzene (I) 2,4,6-trinitrobromo-benzene (II), para-nitrobromobenzene (III), and 2,4-dinitrobromobenzene (IV) towards HO^- ions is:

A. I gt II gt III gt IV

B. II gt IV gt III gt I

C. IV gt II gt III gt I

D. I gt II lt III gt IV

Answer: B

Watch Video Solution

2. Although hexafluoroethane $(C_2F_6, b.\,p.\, -79^\circ C)$ and ethane $(C_2H_6 b.\,p. -89^\circ C)$ differ very much in their molecular weights, their boiling points differ only by $10^\circ C$. This is due to

A. low polarizability of F

B. nearly similar size of F and H

C. both (a) and (b)

D. Neither of the two

Answer: C

View Text Solution

3. Consider the following anions.

When attached to sp^3-hydridized carbon, their leaving group ability in nucleophilic substitution reaction decreases in the order:

A. IgtIIgtIIgtIV

B. IgtIIgtIVgt III

C. IVgtIgtIIgtIII

D. IVgtIIIgtIIgtI

Answer: B

View Text Solution

4. Which of the following si most reactive toward S_{N^2} reaction ?

A. 

B. 

C. 

D. 

Answer: D

Watch Video Solution

5. Which Is a true statement concering the transition state of an S_{N^2} reaction ?

A. Closely resembles a carbocation intermediate

B. The electrophile is responsible for the reaction

C. Lower is energy than the starting materials.

D. Involves both the nucleophile and electrophile.

Answer: D

Watch Video Solution

6. In the following reaction, compound (B) is

A. 

B. 

C. 

D. 

Answer: C

View Text Solution

7. Identify correct reactivity order for S_N1 reaction

A. i gt ii gt iii

B. ii gt iii gt i

C. i gt iii gt ii

D. ii gt i gt iii

Answer: D

View Text Solution

8. 

then A is

A. 

B. 

C. 

D. 

Answer: D

View Text Solution

9. $CH_3CH_2Cl \xrightarrow{NaCN} X \xrightarrow{Ni/H_2} Y$

$Y \xrightarrow[anhydride]{Acetic} Z$

Z in the above reaction sequence is

A. $CH_3CH_2CH_2NHCOCH_3$

B. $CH_3CH_2CH_2NH_2$

C. $CH_3CH_2CH_2CONHCH_3$

D. $CH_3CH_2CH_2CONHCOCH_3$

Answer: A

Watch Video Solution

10. Isobutene $\xrightarrow[\text{peroxide}]{HBr} A \xrightarrow{KCN} B \xrightarrow{dil.H_2SO_4} C +$ inorganic salt D

C and D are

A. $Me_2CHCH_2COOH, (NH_4)_2SO_4$

B. $Me_2CHCOOH, (NH_4)_2SO_4$

C. Me_2CHCH_2COOK, NH_4OH

D. Me_2CHCH_2COOK, K_2SO_4

Answer: A

View Text Solution

11. X in the following reaction is

$$Br_2 + \begin{matrix} CH_3-C-H \\ \| \\ H-C-CH_3 \end{matrix} \xrightarrow{CCl_4} X$$

A. (+)2,3-Dibromobutane

B. (-)2,3-Dibromobutane

C. $(\pm)$2,3-Dibromobutane

D. meso-2,3-Dibromobutane

Answer: D

Watch Video Solution

12. $PhCOCHBr_2 \xrightarrow{OH^-} A \xrightarrow{OH^-} B \xrightarrow{H^+} C$

The compound 'C' is

A. PhCH(OH)CHO

B. PhCH(OH)COOH

C. $PhCOC(H)Br_2$

D. $Ph - \underset{\underset{O}{||}}{C} - CH_2 - OH$

Answer: B

Watch Video Solution

13. Which of the following statements is correct?

A. S_N2 reactions of optically active halides are accompanied by insion of configuration

B. S_N1 reactions of optically active halides are accompanied by racemisation.

C. Carbociation form in S_N1 reaction is sp^2 hybridized.

D. All of the above.

Answer: D

Watch Video Solution

14. $CH_3 - CH_2 - \underset{Cl}{CH}CH_3$ obtained by chlorination of n butane, will be : -

A. l-forms

B. d-forms

C. meso-forms

D. recemic mixture

Answer: D

Watch Video Solution

15. Which of the following is fast de-brominated ?

A. 

B. 

C. 

D. 

Answer: C

Watch Video Solution

16. Which chloroderivative of benzene among the following would undergo hydrolysis most readily with aqueous sodium hydroxide to furnish the corresponding hydroxy derivative ?

A. 

B. 

C. 

D. C_6H_5Cl

Answer: A

Watch Video Solution

17. The compound

$$C_7H_8 \xrightarrow{3C\frac{l_2}{\Delta}} A \xrightarrow{B\frac{r_2}{F}e} B \xrightarrow{Z\frac{n}{H}Cl} C$$

The compound C is

A. o-Bromotoluene

B. m-Bromotoluene

C. p-Bromotoluene

D. 3-Bromo-2,4,6-trichlorotoluene

Answer: B

Watch Video Solution

18. Which compound in each of the following pairs is most reactive to the conditions indicated ?

A. A and C

B. B and C

C. A and D

D. B and D

Answer: A

View Text Solution

19. Chlorobenzene reacts with trichloro acetaldehyde in the presence of H_2SO_4.

The major product formed is:

A. 

B. 

C. 

D. 

Answer: C

View Text Solution

20. In the following sequence of reaction

$$CH_3 - Br \xrightarrow{KCN} A \xrightarrow{H_3O+} B \xrightarrow[Ether]{LiAlH_4} C$$

the end product is .

A. acetone

B. methane

C. acetaldehyde

D. ethyl alcohol

Answer: D

Watch Video Solution

21. What products are formed when the following compound is treated with B_2 in the presence of $FeBr_3$?

A. 

B. 

C. 

D. 

Answer: C

View Text Solution

22. In an $S_N1$reaction on chiral centres, there is

A. 100% ricemization

B. inversion more than retention leading to partial racemization

C. 100 % retention

D. 100% inversion

Answer: B

Watch Video Solution

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

A. 

B. 

C. 

D. 

Answer: A

Watch Video Solution

24. For the following reactions :

(1) $CH_3CH_2CH_2Br + KOH \rightarrow CH_3CH = CH_2 + KBr + H_2O$

Which of the following statements is correct ?

A. (1) and (2) are elimination reaction and (3) is addition reaction.

B. (1) is elimination, (2) is substitution and (3) is addition reaction.

C. (1) is elimination, (2) and (3) are substitution reactions

D. (1) is substitution, (2) and (3) are addition reaction.

Answer: B

View Text Solution

25. The raction of toluene with CI_2 in presence of $FeCI_3$ gives X and reaction in presence of light gives Y Thus X and Y are .

A. X=Benzal chloride, Y=o-Chlorotoluene

B. X=m-Chlorotoluenc, Y=p-Chlorotoluene

C. X=o-and p-Chlorotoluenes,Y = Trichloromethylbenzene

D. X= Benzyl chloride, Y=m-Chlorotoluene

Answer: C

Watch Video Solution

26. Condiser the reactions,

(i) $(CH_3)_2CH - CH_2Br \xrightarrow{C_2H_5OH} (CH_3)_2CH - CH_2OC_2H_5 + HBr$

(ii) $(CH_3)_2CH - CH_2Br \xrightarrow{C_2H_5O^-} (CH_3)_2CH - CH_2OC_2H_5 + Br^-$

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

A. S_N1 and S_N2

B. S_N1 and S_N1

C. S_N2 and S_N2

D. S_N2 and S_N1

Answer: A

Watch Video Solution

27. Predict the major products, P_1 and P_2 in the following two reactions

$Me_2CHBr \xrightarrow{CH_3COO^-} P_1$

$CH_3(CH_2)_{15}CH_2CH_2Br \xrightarrow{(CH_3)_3CO^-} P_2$

A.

$P_1 \quad is \quad Me_2CHOCOCH_3, P_2 \quad is \quad CH_3(CH_2)_{15}CH_2CH_2OCMe$

B. $P_1 \quad is \quad Me_2CHOCOCH_3, P_2 \quad is \quad CH_3(CH_2)_{15}CH = CH_2$

C.

$P_1 \quad is \quad CH_3CH = CH_2, P_2 \quad is \quad CH_3(CH_2)_{15}CH_2CH_2OCMe_3$

D. $P_1 \quad is \quad CH_3CH = CH_2, P_2 \quad is \quad CH_3(CH_2)_{15}CH = CH_2$

Answer: B

Watch Video Solution

28. Pick up the final product in the following reaction.

A. 

B. 

C. 

D. 

Answer: B

View Text Solution