

Chemistry Worksheets Class 12 on Chapter 10 Haloalkanes and Haloarenes - Set 1

Q1. A Grignard reagent can be prepared by reacting magnesium with

- (a) Methylamine
- (b) Diethyl ether
- (c) Ethyl iodide
- (d) Ethyl alcohol

Q2. The S_N2 order for halides is

- (a) $R-F > R-Cl > RBr > RI$
- (b) $RI > RBr > RCl > RF$
- (c) $RBr > RI > RCl > RF$
- (d) $RCl > RBr > RF > RI$

Q3. Which of the following is ethyl dihalide?

- (a) CH_3CHBr_2
- (b) $CH_2(Br)CH_2(Br)$
- (c) $CH_3CH(Br)CH_2(Br)$
- (d) None of the above

Q4. Chloroform on reaction with conc HNO_3 gives

- (a) Chloropicrin
- (b) Nitromethane
- (c) Picric Acid
- (d) Acetylene

Q5. Alkyl halides on treatment with a suspension of Ag_2O moist in ether give

- (a) Alkanal
- (b) Alkanol
- (c) Alkanes
- (d) Alkoxy alkanes

Q6. An alkyl halide C_4H_9Cl is optically active. Draw its possible structure.

Q7. Why are alkyl halides insoluble in water even though they have a polar C-X bond?

Q8. Why is sulphuric acid not used in the reaction of alcohol and KI?

Q9. Write the IUPAC name of DDT.

Q10. Mention two uses of iodoform.

Q11. What is sandmeyer's reaction?

Q12. Write any two tests to identify the existence of a double bond in a molecule.

Q13. Convert aniline to chlorobenzene.

Q14. Why is allyl chloride hydrolysed more readily than n-propyl chloride?

Q15. Out of 2-Bromopentane, 2-Bromo-2-methylbutane, and 1-Bromopentane.

- (a) Which of them will be most reactive towards S_N2 reaction?
- (b) Which of them will be optically active?

(c) Which of them will be most reactive towards beta elimination reaction?

Q16. Which one of the following compounds is more reactive toward S_N2 reaction and why?

$CH_3CH(Cl)CH_2CH_3$ and $CH_3CH_2CH_2Cl$

Q17. What happens when methyl bromide is treated with KCN

Q18. Why is the dipole moment of chlorobenzene less than that of cyclohexyl chloride?

Q19. Write the IUPAC name of the following compounds.

(a) $CH_3CH(Cl)CH(Br)CH_3$

(b) $CHF_2CBrClF$

(c) $ClCH_2C=CCH_2Br$

(d) $(CCl_3)_3CCl$

(e) $CH_3C(p-ClC_6H_4)_2CH(Br)CH_3$

Q20. The substitution reaction of alkyl halide mainly occurs by S_N1 or S_N2 mechanism. Whatever mechanism alkyl halides follow for the substitution reaction to occur, the polarity of the carbon halogen bond is responsible for these substitution reactions. The rate of S_N1 reactions is governed by carbocation stability, whereas for S_N2 reactions, the steric factor is the deciding factor. If the starting material is a chiral compound, we may end up with an inverted product or racemic mixture depending upon the type of mechanism followed by alkyl halide. Cleavage of ethers with HI is also governed by steric factors and stability of carbocation, which indicates that in organic chemistry, these two significant factors help us decide the kind of product formed.

(a) Predict the stereochemistry of the product formed if an optically active alkyl halide undergoes a substitution reaction by the S_N1 mechanism.

(b) Name the instrument used for measuring the angle by which the plane polarised light is rotated.

(c) Predict the primary product formed when 2-Bromopentane reacts with alcoholic KOH.

(d) Mention one use of CHI_3 .

(e) Write the structures of products formed when anisole is treated with HI.