

Question Bank of Haloalkanes and Haloarenes

VERY SHORT ANSWER TYPE QUESTIONS OF ONE MARK EACH:

- Q1. What is difference between d and l? (1)
Q2. What is racemic mixtures? (1)
Q3. What is sandmeyer's reaction? (1)
Q4. Give one use of each of the following: (1)
(a) Freon
(b) D.D.T
Q5. How can prepare Chlorobenzene from Benzene? (1)
Q6. Why are enantiomers called optical isomers? (1)
Q7. What happen when Sodium acetylide is treated with ethyl iodide? (1)

SHORT ANSWER TYPE QUESTIONS-I OF TWO MARKS EACH:

- Q8. Why is thionyl chloride considered as the best reagent to convert alcohol into alkyl chloride? (2)
Q9. What happened when CHCl_3 react with oxygen in presence of sunlight? (2)
Q10. Write the name of product from the reaction of 1-chlorobutane and (i) $\text{NaOH}_{(\text{aq})}$ (ii) $\text{KOH}_{(\text{alc})}$ (2)
Q11. Describe equation of the following reaction: (2)
(i) Wurtz's fitting reaction
(ii) Swartz reaction
Q12. Neo pentyl bromide undergoes nucleophilic substitution reaction slowly. Why? (2)
Q13. State the IUPAC name of the following compounds: (2)
(i) $\text{CH}_3\text{-CH=CH}_2\text{-Br}$
(ii) $\text{CH}_2=\text{CH-Cl}$

SHORT ANSWER TYPE QUESTIONS OF THREE MARKS EACH:

- Q14. Conversion: (3)
(i) Ethanol to chloro ethane
(ii) Benzene to di-phenyl
(iii) butane to ethane
Q15. Point out the difference between: (3)
(i) chirality and chiral centre.
(ii) Racemic modification and meso compounds.
Q16. A solution KOH hydrolyse $\text{CH}_3\text{CHClCH}_2\text{CH}_3$ and $\text{CH}_3\text{CH}_2\text{CH}_2\text{CH}_2\text{Cl}$. Which one of these is more easily Hydrolyzed? (3)
Q17. Explain the terms: (3)
(i) Asymmetric molecule
(ii) Super imposable mirror image
(iii) Optical activity
Q18. Give the mechanism of $\text{S}_{\text{N}}1$ and $\text{S}_{\text{N}}2$ reaction with suitable example. (3)
Q19. Wutz's reaction fail in case of tert alkyl halide (3)

LONG ANSWER TYPE QUESTIONS OF FIVE MARKS EACH:

- Q20. A sweet smelling organic compound A is slowly oxidized by air in the presence of light to a high poisonous gas. On warming with silver powder, it form a gaseous substance B, Which is also produce by action of calcium carbide on water. Identify A and B and write the chemical equation of the reaction involved. (5)
Q21. What happens when: (5)
(i) Methyl chloride treated with KCN.
(ii) Methyl bromide treated with Sodium in the presence of dry ether.
(iii) Ethyl chloride treated with aqueous KOH.
(iv) n-Butyl chloride treated with alcoholic KOH.
Q22. How the following conversion carried out: (5)
(i) Propane to Propan-1-ol
(ii) Ethane to but-1-yne
(iii) 1-bromopropane to 2-bromopropane.
(iv) Chloroethane to Butane
(v) Benzene to di-phenyl

ANSWER KEY OF QUESTION BANK

1. d and l stands for dextro-rotatory and levo-rotatory.
2. A mixture of 2 enantiomers.
3. Answer is given by name reaction.
4. DDT is used as an insecticide and Freon is used as refrigerant in refrigerator and air conditioner.
5. Chlorination of Benzene in presence of AlCl_3 .
6. Enantiomers rotate the plane of polarized light either towards right or towards left.
7. 1-butyne and sodium iodide is obtained.
8. Because both the by-product (SO_2 and HCl) are gaseous which escape from the reaction mixture.
9. A poisonous gas (phosgene gas) is formed.
10. (i) Butan-1-ol (ii) but-1-ene
11. Answer is given by name reaction.
12. Bulky neopentyl group difficult a nucleophile to attack from backside at carbon of C-Br bond.
13. (i) 1-bromopropene
(ii) 1-chloro ethane
14. (i) $\text{C}_2\text{H}_5\text{OH} + \text{HCl} \longrightarrow \text{C}_2\text{H}_5\text{Cl} + \text{H}_2\text{O}$
(ii) $\text{C}_6\text{H}_6 + \text{Cl}_2 \longrightarrow \text{C}_6\text{H}_5\text{Cl} + \text{HCl}$
 $2\text{C}_6\text{H}_5\text{Cl} + 2\text{Na} \longrightarrow \text{C}_6\text{H}_5\text{-C}_6\text{H}_5$
15. Chirality is the properties of a molecule being non super imposable on its mirror image.
Chiral center is bonded to four different atom.
16. $\text{CH}_3\text{CHClCH}_2\text{CH}_3$ is more easily hydrolysed due to stable intermediate carbocation.
17. Answer is given in lesson for absent.
18. Mentioned earlier
19. dehydrohalogenation in the presence of sodium metal instead of undergoing wurtz's reaction.
20. $\text{CHCl}_2 + 2\text{H}_2\text{O} \longrightarrow \text{C}_2\text{H}_2 + \text{Ca}(\text{OH})_2$
(B)
 $2\text{CHCl}_3 + 6\text{Ag} \longrightarrow \text{C}_2\text{H}_2 + 6\text{AgCl}$

$2\text{CHCl}_3 + \text{O}_2 \rightarrow 2\text{COCl}_2 + 2\text{HCl}$
21. (i) Methyl cyanide and KCl.

(ii) Ethane and sodium Bromide.

(iii) Ethyl alcohol and KCl.

(iv) But-1-ene + KCl + H₂O

22. Answer is given in NCERT questions.