

HALOALKANES AND HALOARENES

Physical properties

1. Why do haloalkenes undergo nucleophilic substitution whereas haloarenes undergo electrophilic substitution ?
2. Most aromatic acids are solids while acetic acid and others of this series are liquids. Explain why?
3. Why Grignard reagent should be prepared under anhydrous conditions.?
4. Give reason for the following :
 - (i) The C–O–C bond angle in dimethyl ether is (111.7°)
 - (ii) Alcohols have higher boiling points than ethers of comparable molecular masses
5. p- dichlorobenzene has highest m.p. than those of ortho and m-isomers. Why?
6. Why Carboxylic acid have higher boiling point than alcohols as alcohol forms strongest inter molecular hydrogen bonding
7. Why is the boiling point of an acid anhydride higher than the acid from which it is derived?
8. Explain why o-hydroxy benzaldehyde is a liquid at room temperature while p-hydroxy benzaldehyde is a high melting solid.
9. Melting point of an acid with even no. of carbon atoms is higher than those of its neighbour with odd no. of carbon atoms
10. Why Grignard reagent should be prepared under anhydrous conditions.?

Chemical properties

1. Why pH of reaction should be carefully controlled while preparing ammonia derivatives of carbonyl compound?
2. Sodium Bisulphite is used for the purification of aldehydes and Ketones. Explain
3. Why the oxidation of toluene to benzaldehyde with CrO_3 is carried out in the presence of acetic anhydride.
4. Why formaldehyde cannot be prepared by Rosenmund's reduction?
5. Give reason for the following:-

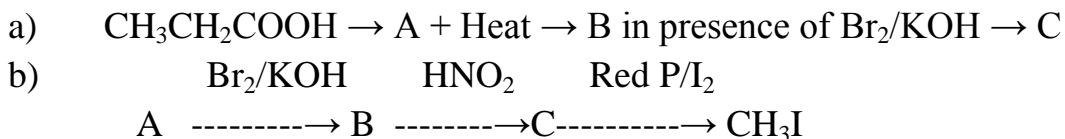
- a) p-methoxy aniline is a stronger base than aniline while p-nitro aniline is a weaker base than aniline
- b) Aromatic primary amines can't be prepared by Gabriel Phthalamide synthesis
- c) CH_3CONH_2 is a weaker base than $\text{CH}_3\text{CH}_2\text{NH}_2$.
- d) Carbon-nitrogen bond length in aromatic amines is shorter than in aliphatic amines.
- e) Aniline does not undergo Friedal-Craft reaction.

6. The compound $\text{C}_5\text{H}_{13}\text{N}$ is optically active and reacts with HNO_2 to give $\text{C}_5\text{H}_{11}\text{OH}$ and liberates N_2 gas. Identify the compound and write the reactions involved.

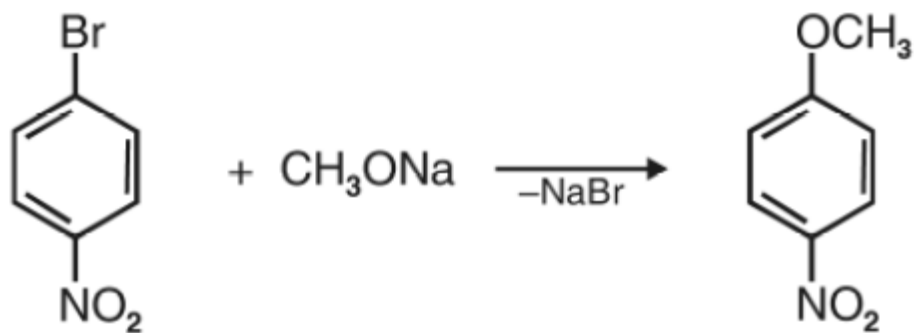
7. Give reasons:

- i) Why do aldehydes behave like polar compounds?
- ii) Phenols are more acidic than alcohols.
- iii) Write suitable reaction for the preparation of t-butyl ethyl ether

8. Name A, B, C in the following equation



- 9. Why is oxidation of alcohols to get aldehydes carried out under controlled conditions?
- 10. Which acid is stronger and why?
 $\text{F}_3\text{C}-\text{C}_6\text{H}_4\text{COOH}$ and $\text{CH}_3\text{C}_6\text{H}_4\text{COOH}$
- 11. Why are the reaction of alcohol /phenol with acid chloride takes place in the presence of pyridine .
- 12. Why is Sulphuric acid not used during the reaction of alcohols with KI?
- 13. Although phenoxide ion has more no. of resonating structures than carboxylate ion , even though carboxylic acid is a stronger acid why ?
- 14.) The following is not an appropriate method for the preparation of 1-methoxy-4-nitrobenzene;



Write the suitable reaction for the preparation of 1-methoxy-4-nitrobenzene

15. Would you expect benzaldehyde to be more reactive or less reactive in nucleophilic addition reaction than propanol. Explain