

CBSE Class 12 physics
Important Questions
Chapter 12
Aldehydes Ketones and Carboxylic Acids

2 Mark Questions

1. Ethanoic acid has molar mass of 120 in vapour state.

Ans. Carboxylic acid on dissociation form carboxylate ion which is stabilized by two equivalent resonance structure in which negative charge is at the more electronegative oxygen atom, whereas the conjugate base of phenol, phenoxide ion, has non – equivalent resonance structures in which negative charge is at the less electronegative carbon atom. Therefore resonance is not as important as it is in carboxylate ion. Moreover the negative charge is delocalized over two more electronegative oxygen atoms in carboxylate ion whereas it is less effectively delocalized over one oxygen atom and one carbon atom in phenoxide ion. Therefore the carboxylate ion is more stabilized than phenoxide ion and carboxylic acids are stronger acids than phenol.

2. Carboxylic acids do not give characteristic reactions of Carboxylic acid is stronger acid than phenol.

Ans. Ethanol can form intermolecular Hydrogen bonding with water molecules, ethyl chloride can not. Therefore ethanol is soluble in water and ethyl chloride is not.

3. Ethanol is more soluble in water than ethyl chloride

Ans. Aldehydes are more reactive than Ketones due to steric and electronic reasons. In Ketones due to presence of two relatively large alkyl groups, the approach of nucleophile is more hindered than in aldehydes having only one such substitute. More over the +I effect of alkyl groups reduces the electrophilicity of carbonyl group more in Ketone than in aldehydes.

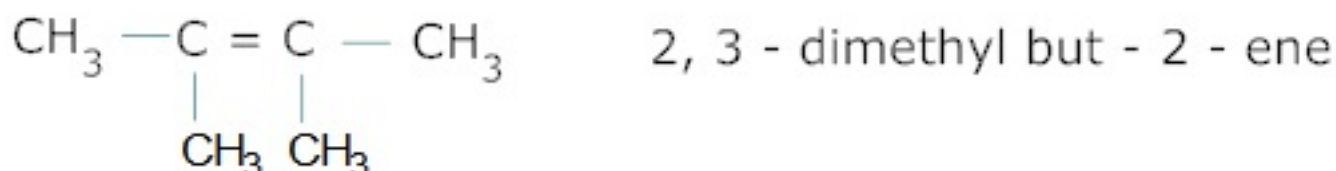
4. Aldehydes are more reactive than Ketones towards nucleophilic additions.

Ans. Carboxylic acids have more extensive association of molecules through intermolecular hydrogen bonding than alcohols. Moreover their boiling points are higher than alcohols of

same carbon atoms.

5. Carboxylic acids has higher boiling points than alcohols of same no. of carbon atoms.

Ans. Ethanoic acid exists as dimer in vapour state in which two molecules remain together by hydrogen bonding. This increases the effective molecular mass to 120.



6. carbonyl group.

Ans. In carboxylic acids due to presence of resonance, the C=O group is not a pure carbonyl group & therefore they do not show characteristic reactions of carbonyl group.

7. Formaldehyde does not undergo aldol condensation.

Ans. Formaldehyde does not have any α -hydrogen and therefore it can not show aldol condensation.

8. Fluoro acetic acid is a stronger acid than acetic acid.

Ans. In fluoroacetic acid, Fluorine being electron withdrawing group stabilizes the conjugate base through delocalization of the negative charge



Therefore fluoroacetic acid is a stronger acid than acetic acid.