

## CHEMISTRY (XII) CHAPTER 12 (Aldehydes and Ketones)

### Short Questions:

1. What are aldehydes and ketones? Give examples.
2. How formalin (formaldehyde) is prepared on commercial (large) scale?
3. How Iodoform is prepared from :
  - a. Ethanol
  - b. Acetaldehyde
4. Compare oxidation of Ethanal and Butanal by oxidizing agent  $K_2Cr_2O_7$ .
5. How acetone would be changed to propane and tertiary butyl alcohol?
6. Give reaction for the formation of acetal.
7. Give reaction for the formation of formaldehyde from methyl alcohol.
8. Give reactions to produce  $\alpha$ -Hydroxy acid (Lactic acid) from aldehyde.

**OR** Convert acetaldehyde to Lactic acid.
9. Fehling's solution reacts with aldehydes to produce red ppt. justify it.

**OR** What is Fehling's solution test to identify the aldehyde?
10. Give two tests for distinguishing between aldehyde and ketone.
11. Write equations for the reactions of acetaldehyde with:
  - i.  $NaHSO_3$
  - ii.  $HCN$
12. How aldehyde reacts with phenyl hydrazine. Give its mechanism?
13. How the reduction process of aldehydes and ketones gives alcohols?
14. Justify that Cannizzaro's reaction is self oxidation-reduction reaction.
15. Addition of  $HCN$  on aldehydes and ketones is a base catalyzed reaction. Explain.
16. Explain oxidation of aldehyde.
17. How acetaldehyde is distinguished from Formaldehyde?
18. Write down four uses of formaldehyde.
19. Write down four uses of Acetaldehyde.
20. Write the names of weak oxidizing agents which can oxidize aldehydes but not ketones.
21. How Iodoform is obtained from:
  - i. Acetaldehyde
  - ii. Ethyl alcohol
22. What is silver mirror's test? What is its importance?

**OR** Tollen's test is also called silver mirror test. Justify it.

**OR** What is Tollen's test? Illustrate your answer with chemical equation.
23. How formaldehyde and acetaldehyde undergo polymerization.
24. Give formulae of formaldehyde and acetaldehyde.
25. Prepare acetone from calcium acetate?
26. What is difference between aldehyde and ketone?
27. Give industrial preparation of formaldehyde.
28. Write the reaction of phenyl hydrazine with acetaldehyde and acetone.
29. Convert acetone into 2-Propanol.
30. How Iodoform test can be used to distinguish between methyl ketones and other ketone?

### LONG QUESTIONS:

1. What types of aldehydes give Cannizzaro's reaction? Give its mechanism.
2. Discuss the reaction of Ethanal and Propanone with:
  - a. Hydroxyl amine
  - b. Phenyl hydrazine
3. Distinguish:
  - a. Acetaldehyde and propanone
  - b. Formaldehyde and acetaldehyde
4. Discuss Haloform reaction with one example.
5. Describe the mechanism of reaction of sodium bisulphate with acetone.
6. Prepare following compounds from carbonyl compounds:
  - a. Lactic acid
  - b. Paraldehyde
  - c. Ethanal Oxime
  - d. Croton aldehyde
7. Discuss oxidation of aldehydes with:
  - i.  $K_2Cr_2O_7/H_2SO_4$
  - ii. Tollen's reagent

**8.** How does acetaldehyde react with following reagents:

**a.**  $\text{C}_2\text{H}_5\text{MgI}$

**b.**  $\text{HCN}$

**c.**  $\text{NaHSO}_3$

**d.**  $\text{I}_2/\text{NaOH}$

**9.** What are Aldols? Explain Aldol condensation reaction mechanism for condensation of Ethanal.

**10.** Write any four uses of acetaldehyde.