

CBSE Class 12 Chemistry Chapter 12 Aldehydes, Ketones, and Carboxylic Acids Worksheet – Set 1

Q1. What is the hybridisation of carbon in the carbonyl group?

- (a) sp
- (b) sp^2
- (c) sp^3
- (d) None of the above

Q2. Carbonyl group take part in the _____ or _____ and _____ reactions.

- (a) Electrophilic addition reaction
- (b) Nucleophilic addition reaction
- (c) Electrophilic and nucleophilic addition reaction
- (d) None of the reactions

Q3. Both aldehyde and ketones give an addition reaction with

- (a) HCN
- (b) NaHSO_3
- (c) Both (a) and (b)
- (d) None of the above

Q4. Which of the following carbonyl compound does not undergo aldol condensation?

- (a) HCHO
- (b) CH_3CHO
- (c) $\text{CH}_3\text{CH}_2\text{CHO}$
- (d) None of the above

Q5. Aldol condensation between the following compounds followed by the dehydration gives methyl vinyl ketone.

- (a) Methanal and ethanal
- (b) Two moles of formaldehyde
- (c) Methanal and propanone
- (d) None of the above

Q6. Draw the structure of the compound whose IUPAC name is 4-chloropentan-2-one.

Q7. Name an aldehyde that does not give Fehling solution test.

Q8. Why does benzaldehyde give a positive Tollen's reagent test but not Fehlings or Benedict solution test?

Q9. What type of aldehydes can undergo the Cannizaro reaction?

Q10. Can we consider the Gattermann-Koch reaction similar to Friedel Craft's acylation reaction? Explain.

Q11. Alkene shows electrophilic addition reactions, whereas carbonyl compounds show nucleophilic addition reactions even though they both contain a pie bond. Justify.

Q12. What is Tollen's reagent?

Q13. Organise the following hydrocarbons in increasing ranking of their reactivity in nucleophilic addition reactions.

CH_3CHO , $\text{CH}_3\text{CH}_2\text{CHO}$, CH_3COCH_3 , $\text{CH}_3\text{COCH}_2\text{CH}_3$

Q14. How can you distinguish between benzoic acid and phenol?

Q15. Why can not we use formaldehyde in an aldol condensation reaction?

Q16. Convert benzoic acid to benzaldehyde.

Q17. What is Hell-Volhard-Zelinsky reaction?

Q18. How will you distinguish between propanal and propanone?

Q19. How will you distinguish between benzaldehyde and acetophenone?

Q20. A has a characteristic odour, on treating with NaOH, and forms two compounds (B) and (C). Compound (B) has the molecular formula $\text{C}_7\text{H}_8\text{O}$, which on oxidation with CrO_3 , gives back compound (A). Compound (C) is the sodium salt of the acid. Compound (C), when heated with soda lime, yields an aromatic hydrocarbon (D). Deduce the structures of (A), (B), (C) and (D). Write chemical equations for all reactions taking place.