CBSE NCERT Based Chapter wise Questions (2025-2026)

Class-XII

Subject: Chemistry

Total : 11 Marks (expected) [MCQ-1 × 3 Mark, Conversion Q-1 × 3 Marks, LQ-5 Marks]

Chapter Name : *Aldehydes, Ketones and Carboxylic Acids* (Chap : 8)

Level - 2

SECTION – A **[1 Mark each]**

(I) MCQ (one current answer):

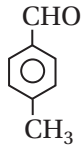
1. In clemension reduction carboxyl compound is treated with _____

Ⓐ zinc amalgam + HCl Ⓑ Sodium amalgam + HCl

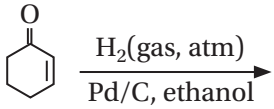
Ⓒ Zinc amalgam + nitric acid Ⓓ Sodium amalgam + HNO_3

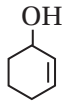
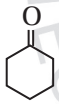
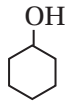
[Hints : NCERT Exemplar]

2. Which is the most reactive towards nucleophilic substitution?

Ⓐ Benzaldehyde Ⓑ Acetophenone Ⓒ  Ⓓ 

[Hints : Nitro group is most electron withdrawing]

3.  'A' is:

Ⓐ  Ⓑ  Ⓒ  Ⓓ 

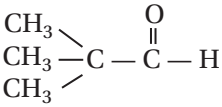
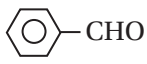
[Hints : C = C reduced faster than C = O bond with H_2 (Pd/C).]

4. Iodoform test is not given by:

Ⓐ Ethanol Ⓑ Ethanal Ⓒ Pentan-2-one Ⓓ Pentan-3-one

[Hints : CBSE 2020, 56/1/1]

5. Cannizaro's reaction is not given by—

Ⓐ  Ⓑ  Ⓒ HCHO Ⓓ CH_3CHO

[Hints : NCERT, Pg 242 Vol-II]

6. The reagent which does not react with both, acetone and benzaldehyde?

Ⓐ Sodium hydrogen sulphite Ⓑ Phenyl hydrazene

Ⓒ Fehling's solution Ⓓ Grignard's reagent

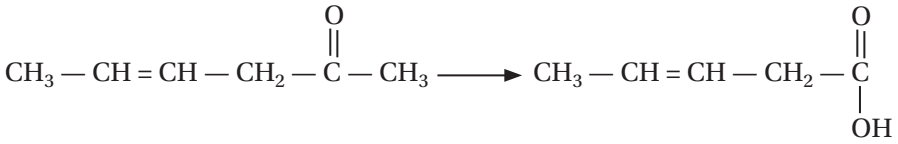
[Hints : Due to absence of α-H Fehing's solution does not react]

7. Which of the following compounds is most reactive towards nucleophilic addition reactions?

Ⓐ CH_3CHO Ⓑ CH_3COCH_3 Ⓒ C_6H_5CHO Ⓓ $C_6H_5COCH_3$

[Hints : NCERT vol-II, Pg-241]

8. Which is the most suitable reagent for the following conversion?



Ⓐ Tollen's reagent Ⓑ Benzoyl peroxide Ⓒ I_2 and NaOH solution Ⓓ Sn and NaOH solution

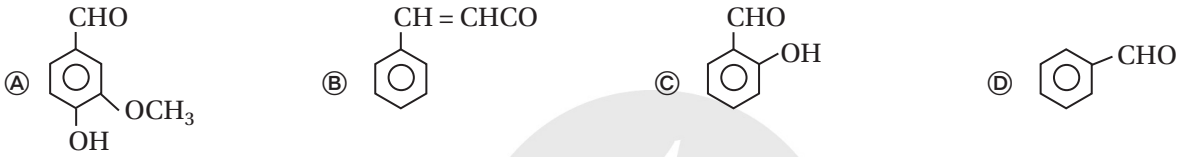
[Hints : NCERT, In iodoform reaction, acid obtained having 1 carbon less than the reaction]

9.  ; Name the product 'P' in the following:

Ⓐ Ethyl alcohol Ⓑ Benzyl alcohol Ⓒ Benzene Ⓓ Methyl alcohol

[Hints : Cannizaro's reaction, NCERT, Pg-242]

10. Identify the structure of salicyldehyde from the options given below:



[Hints : Salicyldehyde is 2-hydroxy benzaldehyde]

SECTION – B **[3 Marks]**

(II) Convert the following:

11. Acetaldehyde to Butan-2-one

[Hints : Use C_2H_5MgBr, H_3O + oxitation]

12. Acetaldehyde to Butan-1-ol

[Hints : Use $OH^{\ominus}$, H^+, heat, hydrozenation]

13. Acetaldehyde to butanoic acid

[Hints : Use OH^-, H^+, heat; Ni/H_2, $K_2Cr_2O_7$/conc. H_2SO_4]

14. Ethylcyanide to ethanoic acid

[Hints : H_3O^+, NH_3, Br_2/KOH, $NaNO_2$/HCl, (O)]

15. Benzoic acid to m-bromobenzoic acid

[Hints : Use $FeBr_3/Br_2$]

SECTION – C **[5 Marks]**

(III) Long Answer Type Question:

16. (a) Write the chemical equations to illustrate each of the following name reactions:

(i) Rosenbund reduction.

(ii) Hell-Volhard-Zelinsky reaction.

(b) Convert Benzene to m-nitrobenzaldehyde.

(c) Account for the following

(i) C_6H_5CHO is more reactive than CH_3COCH_3 towards reaction with HCN.

(ii) There are two NH_2 – group in semi carbazide ($H_2NNH\ CONH_2$). However, only one is involved in the formation of semicarbazene.

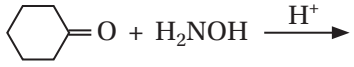
[Hints : CBSE 2023, 2018]

17. (a) Give simple chemical tests to distinguish between the following pairs of compounds.

(i) Benzaldehyde and benzoic acid

(ii) Butanal and propanone

(b) Write the products of the following reactions:

(i) 

(ii) $2C_6H_5CHO + \text{Conc. NaOH} \longrightarrow$

(iii) $CH_3COOH \xrightarrow{Cl_2/P}$

[Hints : CBSE - 2020, Delhi - 2017, 2014]

18. (a) Identify A to D.

$$CH_3COOH \xrightarrow{PCl_5} \text{'A'} \xrightarrow{H_2/Pd\text{-}BaSO_4} \text{'B'} \xrightarrow[(ii)\ H_3O^+]{(i)\ CH_3MgBO} \text{'C'} \xrightarrow{LiAlH_4} \text{'D'}$$

(b) Distinguish between the following by sustainable chemical tests:

(i) $CH_3COCH_2CH_3$ and $CH_3CH_2CH_2CHO$

(ii) Ethanal and ethanoic acid

[Hints : CBSE 2023]

19. (a) Write the reactions involved in the following:

(i) Etard reaction

(ii) Stephen reduction

(b) How will you convert the following in not move than two steps.

(i) Benzoic acid to Benzaldehyde

(ii) Acetophenone to benzoic acid

(iii) Ethanoic acid to 2-hydroxy ethanoic acid

[Hints : CBSE - 2017]

20. (a) Give a chemical test to distinguish between ethanol and ethanoic acid.

(b) Why are the a-hydrogens of aldehydes and ketones acidic in nature?

(c) An organic compounds 'A' with molecular formula $C_4H_8O_2$ undergoes acid hydrolysis to form two compounds 'B' and 'C'. Oxidation of 'C' with acidified $KMnO_4$ also process 'B'. Sodium salt of 'B' on heating with soda lime gives methane.

(i) Identify 'A', 'B' and 'C'.

(ii) Out of 'B' & 'C', which will have higher boiling point? Give reason.

[Hints : CBSE - 2022]

ANSWER

1. Ⓐ
2. Ⓒ
3. Ⓑ
4. Ⓓ
5. Ⓓ
6. Ⓒ
7. Ⓐ
8. Ⓒ
9. Ⓑ
10. Ⓒ