

Oxygen Containing Organic Compounds-II

Date Planned : __ / __ / __	CBSE Pattern	Expected Duration : 90 Min
Actual Date of Attempt : __ / __ / __	Level-0	Exact Duration : _____

Very Short Answer Type

(1 Mark)

- IUPAC name of the following compound $\text{Ph} - \text{CH} = \text{CH} - \text{CHO}$.
- Write the product in the following reaction :

$$\text{CH}_3 - \text{CH} = \text{CH} - \text{CH}_2\text{CN} \xrightarrow[\text{(ii) H}_2\text{O}]{\text{(i) DIBAL-H}} (\text{A})$$
- Aldehydes and ketones have lower boiling points than corresponding alcohols why ?
- Distinguish between the following using suitable chemical test.

$$\begin{array}{c} \text{O} \\ || \\ \text{C}_6\text{H}_5 - \text{C} - \text{CH}_3 \end{array}$$

$$\begin{array}{c} \text{O} \\ || \\ \text{C}_6\text{H}_5 - \text{C} - \text{H} \end{array}$$
- Name the reagent used in the following reaction :

$$\text{C}_6\text{H}_5\text{CH}_2\text{CH}_3 \xrightarrow{?} \text{C}_6\text{H}_5\text{COO}^-\text{K}^+$$
- Give reason chloral hydrate is a gem diol but stable.
- Write chemical equation to illustrate the following name reaction : Cannizzaro reaction

Short Answer Type-I

(2 Marks)

- Write equation involved in the following reaction :

(i) Stephens reaction

(ii) Etard reaction
- An organic compound A, having the formula $\text{C}_3\text{H}_8\text{O}$, on heating with copper at 573 K, gives B. B doesn't reduce Fehling's solution but gives a yellow ppt. of the compound C with I_2/NaOH . Deduce the structure of A, B and C ?
- Write the structure of A and B in the following reaction :

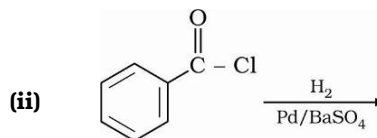
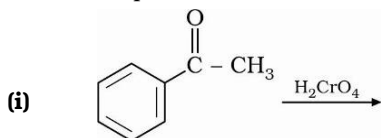
$$\text{CH}_3\text{COCl} \xrightarrow{\text{H}_2, \text{Pd}-\text{BaSO}_4} \text{A} \xrightarrow[\text{NH}_2\text{OH}]{\text{H}^+} \text{B}$$
- Describe the following reaction ?

(i) Acetylation

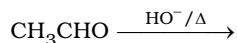
(ii) Aldol condensation
- Predict the product of the following reaction :

(i)
$$\text{CH}_3 - \overset{\text{O}}{\overset{||}{\text{C}}} - \text{CH}_3 \xrightarrow[\text{(ii) KOH / glycol } \Delta]{\text{(i) NH}_2\text{NH}_2} \text{A}$$

(ii)
$$\text{C}_6\text{H}_5 - \overset{\text{O}}{\overset{||}{\text{C}}} - \text{CH}_3 \xrightarrow{\text{NaOH} / \text{I}_2} \text{B} + \text{C}$$
- Predict the product of the following reaction :



14. (a) Write the product of the following reaction :

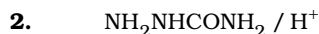
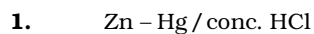


- (b) Given simple chemical tests to distinguish between the following pairs of compounds :
Benzaldehyde and benzoic acid.

Short Answer Type-II

(3 Marks)

15. Write the structure of the main products when acetone ($\text{CH}_3 - \overset{\text{O}}{\underset{\text{||}}{\text{C}}} - \text{CH}_3$) reacts with the following reagents :



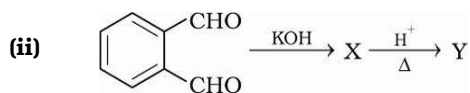
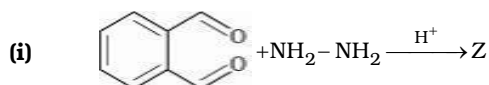
16. How will you bring about the following conversions ?

(i) Propanone to propane

(ii) Benzoyl chloride to benzaldehyde

(iii) Ethanal to but-2-enal

17. Identify X, Y and Z in the following sequence of reactions.



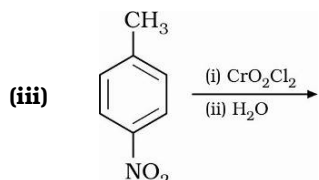
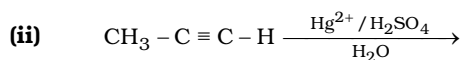
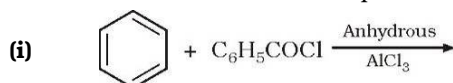
18. Write the chemical equations to illustrate the following name reaction :

(i) Wolff kishner reduction

(ii) Aldol condensation

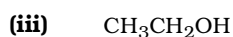
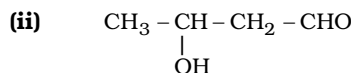
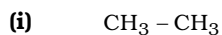
(iii) Cannizzaro reaction

19. Write the structure of the main product of the following reactions.



20. An organic compound with molecular formula $\text{C}_9\text{H}_{10}\text{O}$ form 2, 4-DNP derivative, reduces Tollen's reagent and undergoes Cannizzaro's reaction. On vigorous oxidation it gives 1, 2-benzenecarboxylic acid. Identify the compound.

21. How will you convert ethanal into the following compounds? Give the chemical equation involved.



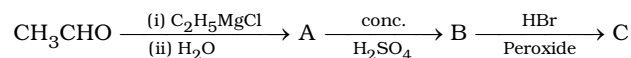
Long Answer Type

(5 Mark)

22. Consider all isomeric ketones including stereoisomers having molecular mass equal to 100.

- (a) Draw structure of ketones that undergoes haloform reaction
 (b) Draw structure of ketones that produce racemic product on reduction by using NaBH_4 .

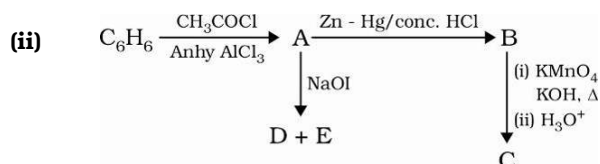
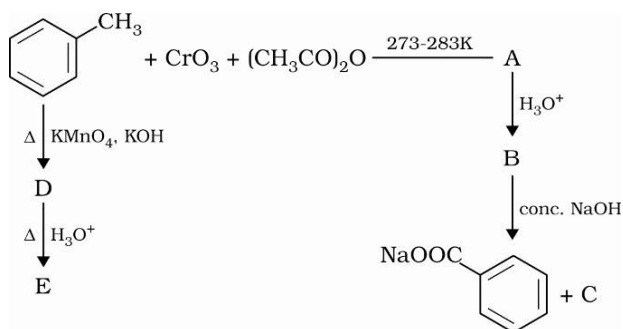
23. (a) Identify A, B and C in following sequence of reaction



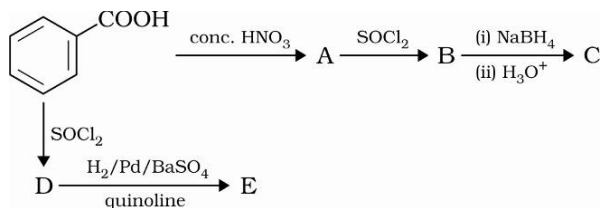
(b) Predict the structure of the products formed when benzaldehyde is treated with NaOH .

- (i) conc. NaOH
 (ii) $\text{HNO}_3 / \text{H}_2\text{SO}_4$ (at 273-283 K)

24. (i) Identify A to E in the following series of reaction :



25. (i) Identify A to E in the following reactions :



- (ii) An organic compound (A) on treatment with acetic acid in the presence of sulphuric acid produces an ester (B), (A) on mild oxidation gives (C). (C) with 50% KOH followed by acidification with dil HCl generates (A) and (D). (D) with PCl_5 followed by reaction with ammonia gives (E). (E) on dehydration produces hydrocyanic acid.
 Identify the compounds A, B, C, D and E.