

HINTS & SOLUTIONS

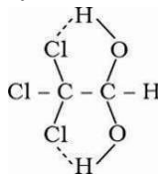
Oxygen Containing Organic Compounds-II

Daily Tutorial Sheet

Level-0

1 MARK QUESTIONS

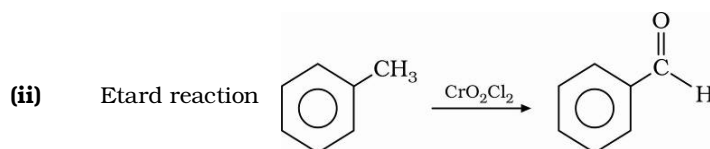
- Ph - HC = CH - CHO 3-phenyl prop-2-en-1-al
- $$\text{CH}_3 - \text{CH} = \text{CH} - \text{CH}_2\text{CN} \xrightarrow[\text{(ii) H}_2\text{O}]{\text{(i) DiBAL-H}} \text{CH}_3 - \text{CH} = \text{CH} - \text{CH}_2 - \overset{\text{O}}{\parallel}{\text{C}} - \text{H}$$
- Alcohols have higher boiling point than aldehydes and ketones because of H-bonding in alcohols.
- Ph - CO - CH₃ & Ph - CHO can be differentiated by Tollen's test or Iodoform test.
Benzaldehyde gives Tollen's test but acetophenone doesn't. Acetophenone gives iodoform test but Benzaldehyde doesn't.
- $$\text{Ph} - \text{CH}_2 - \text{CH}_3 \xrightarrow[\Delta]{\text{KMnO}_4 - \text{KOH}} \text{Ph} - \text{COO}^-\text{K}^+$$
- Chloral hydrate is stabilized by intra-molecular H-bonding hence stable.



- It is aldol condensation reaction
$$2\text{CH}_3\text{CHO} \xrightarrow[\Delta]{\text{HO}^-} \text{CH}_3 - \text{CH} = \text{CH} - \text{CHO} + \text{H}_2\text{O}$$

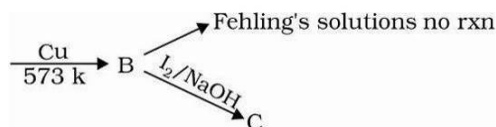
2 MARK QUESTIONS

- (i) Stephens reaction
$$\text{R} - \text{C} \equiv \text{N} \xrightarrow{\text{SnCl}_2 / \text{dilHCl}} \text{R} - \text{CH} = \text{N} \cdot \text{HCl} \xrightarrow{\text{H}_3\text{O}^+} \text{RCHO} + \text{NH}_4\text{Cl}$$

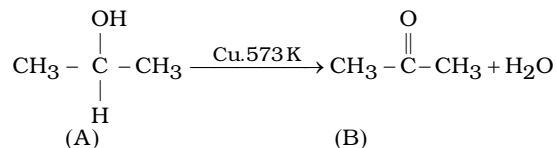


- A = C₃H₈O

A is alcohol because D.U. = 0

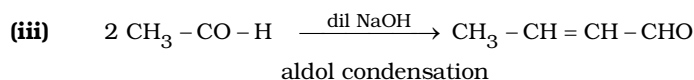
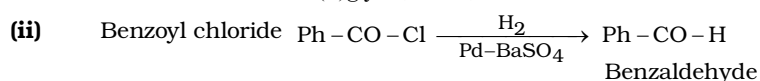
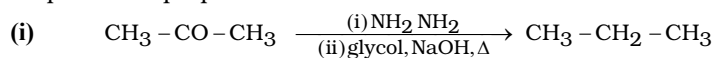


B is a ketone because it gives iodoform test therefore A must be 2° alcohol.

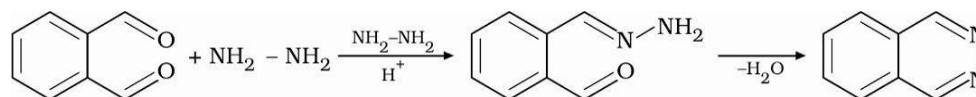


- $$\text{CH}_3 - \text{CO} - \text{Cl} \xrightarrow{\text{H}_2, \text{Pd-BaSO}_4} \text{CH}_3 - \text{CO} - \text{H} \xrightarrow{\text{NaOH}} \text{CH}_3\text{CH}(\text{OH})\text{CH}_2\text{CHO}$$

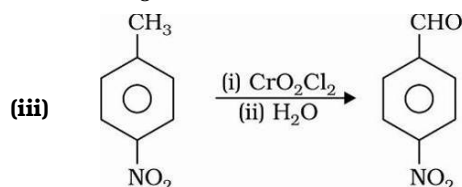
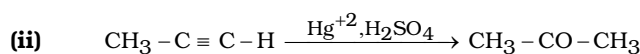
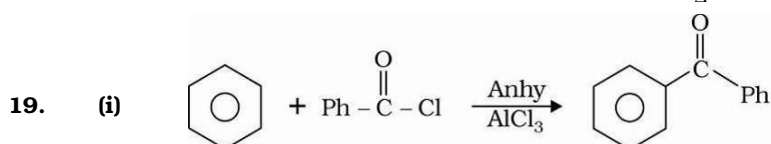
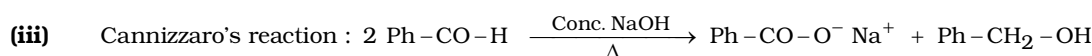
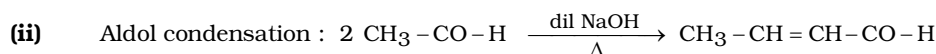
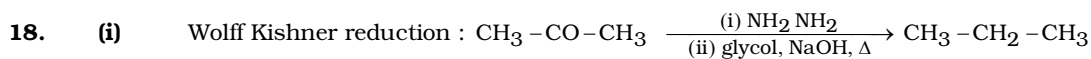
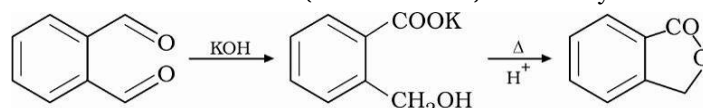
16. Propanone to propane



17. (i) It is reaction with ammonia derivatives.



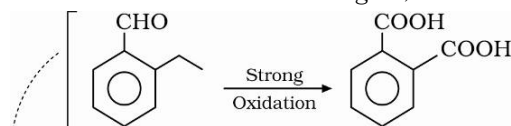
(ii) It is Cannizzaro's reaction (intramolecular) followed by intramolecular esterification.



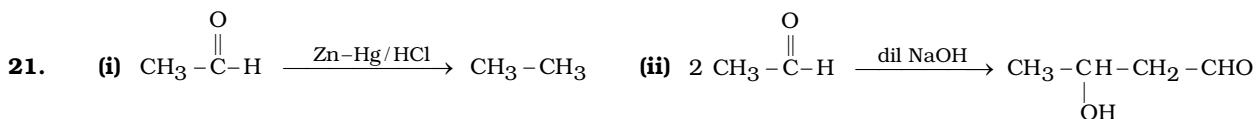
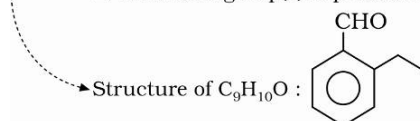
20. $\text{C}_9\text{H}_{10}\text{O}$: DU = 5 (Benzene ring and one other D.U)

⇒ 2,4 DNP derivative suggests presence of carbonyl group.

⇒ Since it reduces Tollen's reagent, it contains aldehyde group.



⇒ Since acid group(s) is present on 2 position, 3 carbons are distributed at 1 and 2 position respectively.

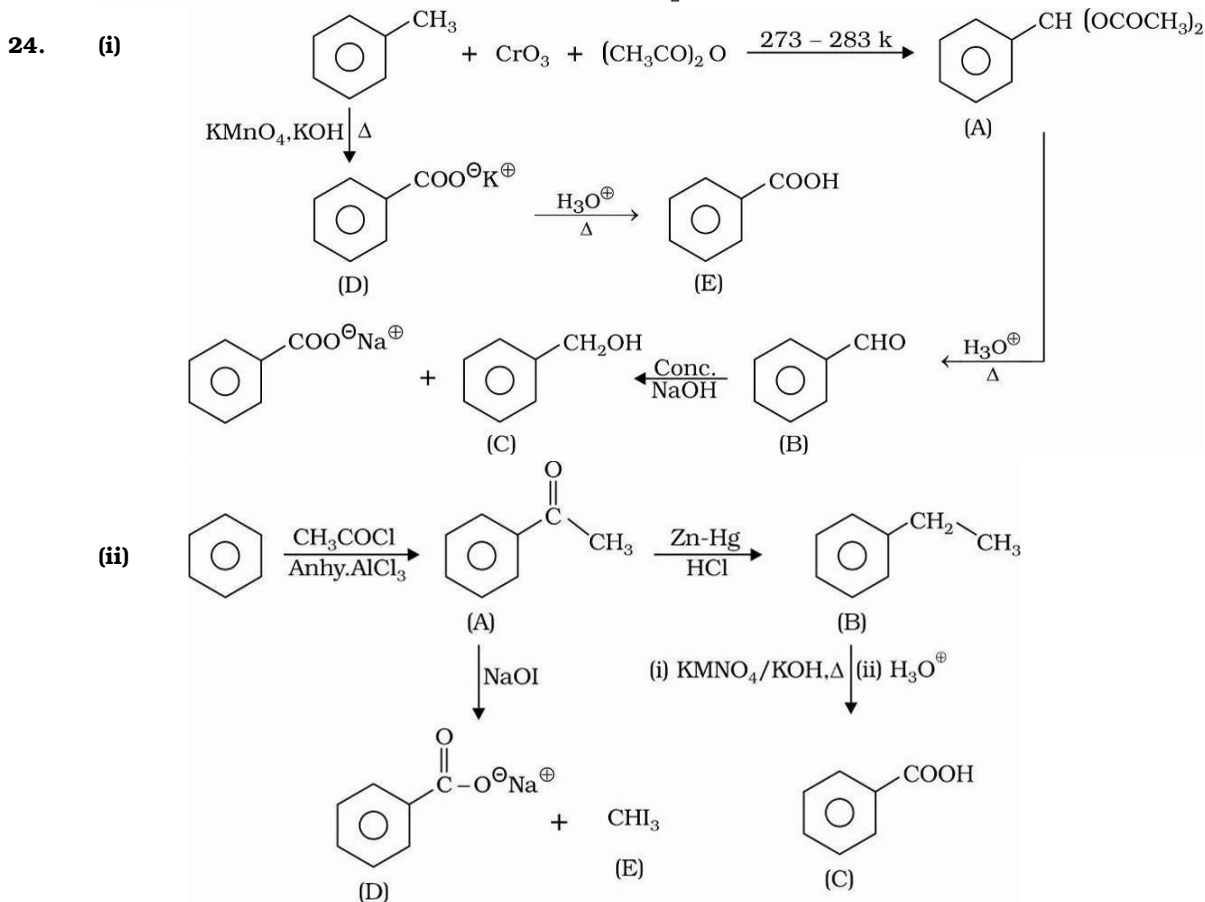
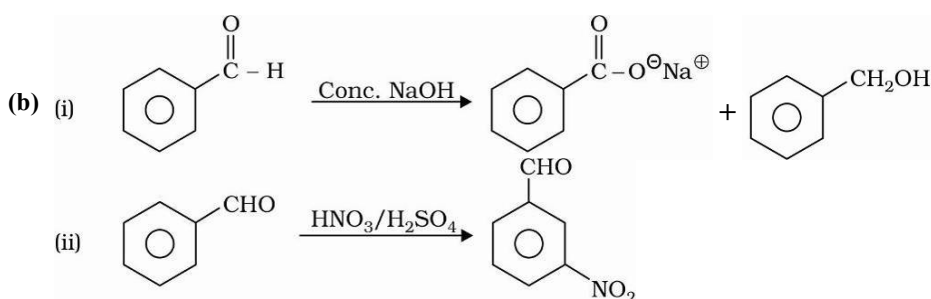
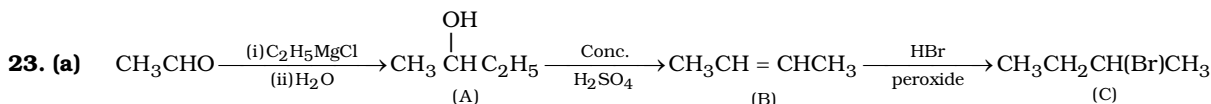
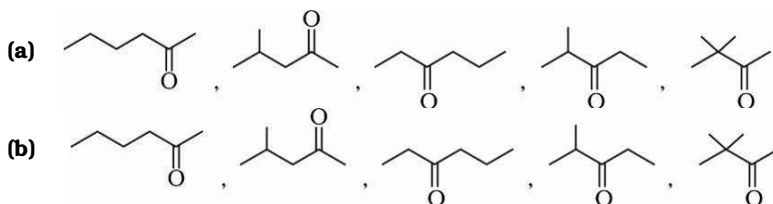


5 MARK QUESTIONS

22. Let molecular formula of ketone be $C_nH_{2n}O$.

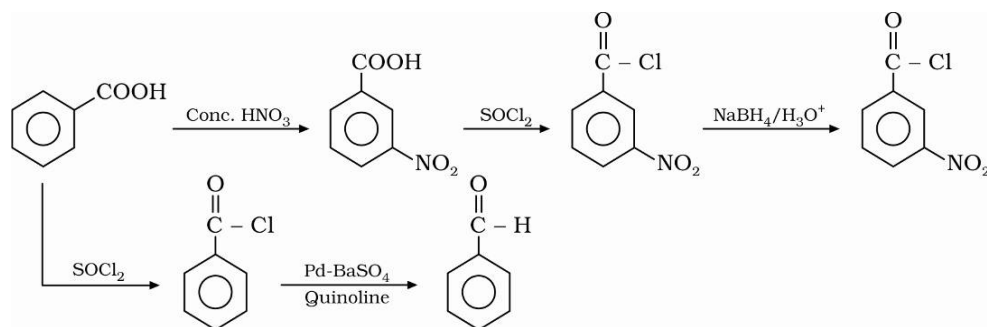
$$12n + 2n + 16 = 100 \Rightarrow 14n = 100 - 16$$

$$n = \frac{84}{14} = 6$$



25.

(i)



(ii)

