| Daily Tutorial Sheet 4 | JEE Advanced (Archive) |
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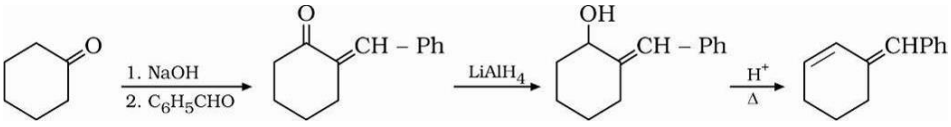
**45.** *For solution refer to Chapter-22 (Oxygen Containing Organic Compounds-I), Illustration-13.*

**46.** (C) has to be benzaldehyde as the product is a α-β unsaturated carbonyl compound (Cross-aldol condensation).



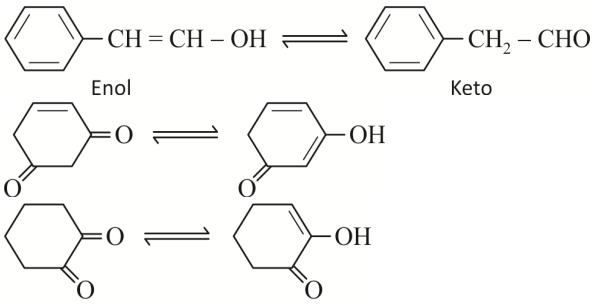

**47.** Aldehyde A does not has any $\alpha-H$ but undergo ozonolysis to give two moles of compound B and benzaldehyde. Compound B on oxidation gives oxalic acid, so A is :

$$\underset{\text{A}}{C_6H_5-CH=CH-C\equiv C-CHO} \xrightarrow{O_3} C_6H_5-CHO + 2\underset{\text{B}}{HOOC-CHO}$$

$$B \xrightarrow{Ag^+} \begin{matrix} COOH \\ | \\ COOH \end{matrix}$$

**48.(B)** $Cl-\underset{Cl}{\overset{Cl}{\underset{|}{\overset{|}{C}}}}-CH=O + H_2O \longrightarrow Cl-\underset{Cl}{\overset{OH}{\underset{|}{\overset{|}{C}}}}-CH(OH)_2$ (Chloral hydrate)

**49.(ACD)** For tautomerism, presence of α-hydrogen is essential

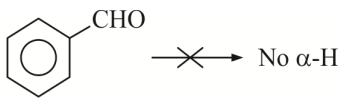



**50.(BD)** Cannizzaro's reaction is a disproportionation reaction. No $C-C$ bond is formed. Similarly no $C-C$ bond will be formed during Clemmensen's reduction.

**51.(ABD)** For aldol condensation to take place presence of α-H is essential.

$$2CH_3-\overset{O}{\overset{\|}{C}}-H \xrightarrow[\text{Condensation}]{\text{Aldol}} CH_3-CH=CH-\overset{O}{\overset{\|}{C}}-H$$

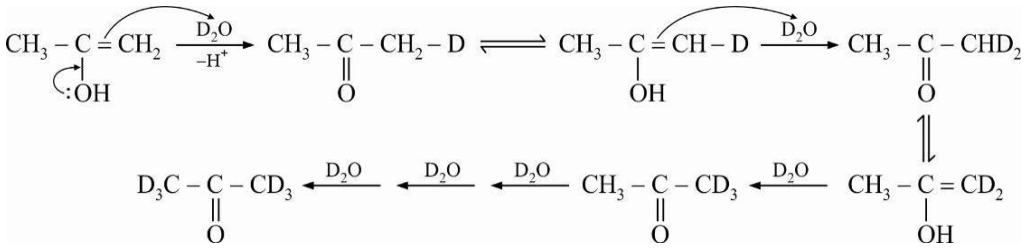
$$2CH_3-CH_2-\overset{O}{\overset{\|}{C}}H \xrightarrow[\text{Condensation}]{\text{Aldol}} CH_3CH_2CH=\underset{CH_3}{\overset{|}{C}}-\overset{O}{\overset{\|}{C}}-H$$



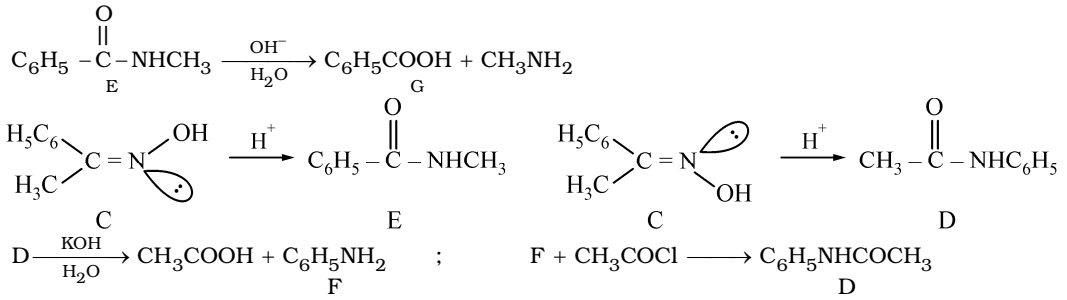

$$2CD_3-\overset{O}{\overset{\|}{C}}-H \xrightarrow[\text{Condensation}]{\text{Aldol}} CD_3-CD=C-\overset{O}{\overset{\|}{C}}-H \qquad D_3C-CH=CD-\overset{O}{\overset{\|}{C}}-H$$

**52.(AD)** Only primary amines will react with acetone to give a product containing $>C=N-$.

**53.(B)**

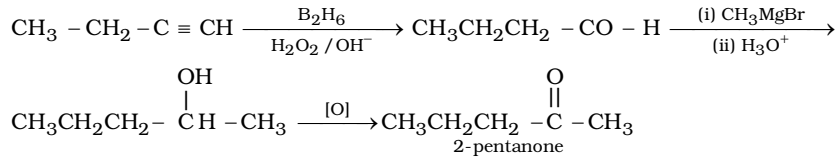


**54. (a)** G is benzoic acid $C_6H_5-COOH$, B and C are two stereoisomeric oximes which undergo Beckmann's rearrangement on treatment with acid to give amides D and E. In Beckmann's rearrangement, the group *anti* to –OH migrates to nitrogen ; then oxygen of OH group moves to carbon atom forming carbonyl group.

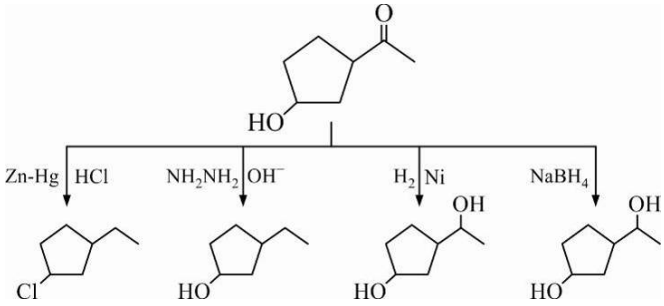


$\Rightarrow \quad A = C_6H_5-CO-CH_3$

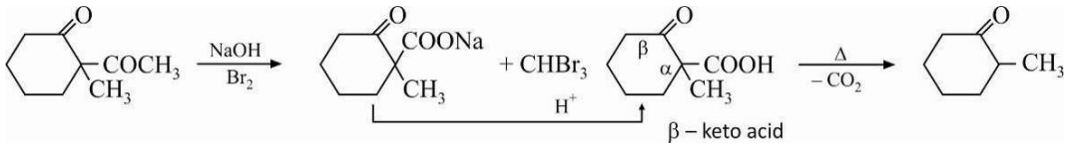
**(b)**



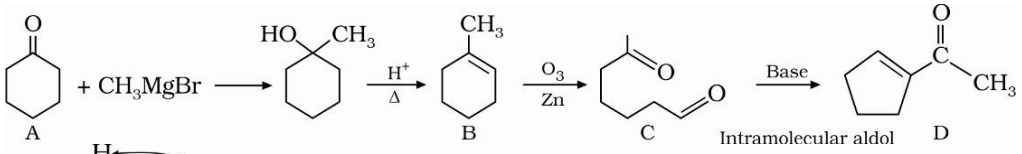
**55.(B)**



**56.**



**57.**



**58.**