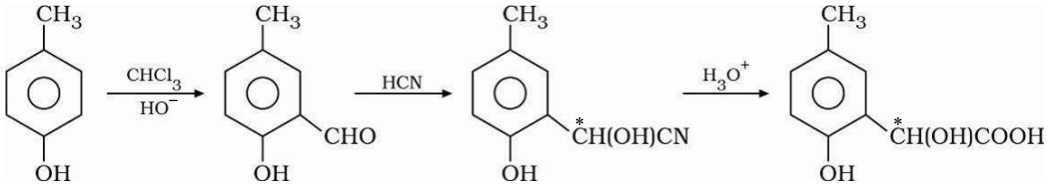
Daily Tutorial Sheet-3	Level-1

31.(B) The reactivity of benzaldehyde is increased by the presence of deactivating group at 'o' & 'p' position which increase polarity of $>C=O$ bond via $-M$ effect.

32.(B) Electron withdrawing group increases polarity of $>C=O$ bond via negative inductive (–I) effect, thereby increasing reactivity of carbonyl compounds.

33.(C) 

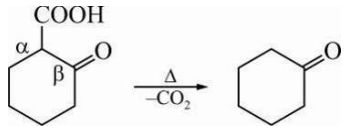
The compound which gives an aldehyde group with an alkaline solution of chloroform has to be a phenol (Riemer-Tiemann reaction).

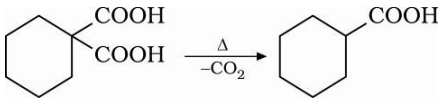
34.(C) The reactivity of carbonyl compounds depends upon polarity of carbonyl carbon; which decreases by electron releasing effect (via $+I$ or $+M$ effect).

$$\underset{}{HCHO} > \underset{(+I)}{CH_3COCH_3} > \underset{(+I)\ (+M)}{CH_3COPh} >> \underset{(+M)\ (+M)}{PhCOPh}$$

35.(D) $3CH_3CHO + 3NH_3 \longrightarrow \underset{\text{Acetaldehyde ammonia trimer}}{(CH_3CHNH)_3} + 3H_2O$

36.(ABD) β - keto acids $\xrightarrow{\Delta} CO_2 +$ Ketones.

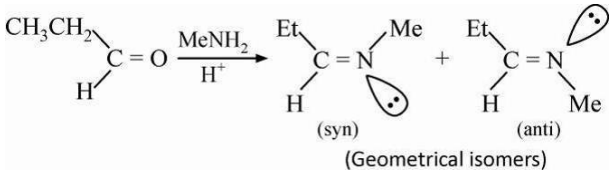
➢ 

➢ 

37.(A) A has to be ketone as it does not answer Tollen's test. It has to be aromatic as due to more unsaturation, it burns with a sooty flame.

38.(ABC) Na/EtOH (Bouvalt Blanc Reduction), $LiAlH_4$ and $NaAlH_4$ all reduce esters to alcohol(s).

39.(A) $C_3H_5N \equiv CH_3CH_2CN \xrightarrow{H_3O^+} CH_3CH_2COOH \xrightarrow{PCl_5} CH_3CH_2COCl \xrightarrow{(CH_3)_2CuLi} CH_3CH_2COCH_3$

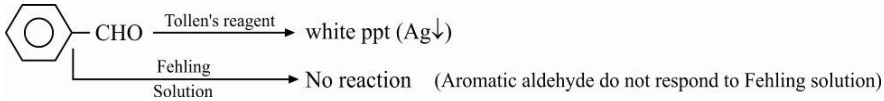
40.(C) 

[Aldimines]

41.(AC) For enamine formation, aldehyde and ketone must have $\alpha - H$ atom,

$$CH_3CH_2CHO + (iso-Pr)_2NH \longrightarrow \underset{\text{Enamine}}{CH_3CH=CH-N(iso\text{-}Pr)_2}$$

42.(D) X has to be an aldehyde $HC \equiv CH \xrightarrow[Hg^{2+}/H^+]{H_2O} \underset{(X)}{CH_3CHO} \xrightarrow{Cu^{2+}} CH_3COOH + \underset{\text{Red ppt.}}{Cu_2O\downarrow}$

43.(D) 

Ketones (all) $\begin{matrix}\underline{\text{Tollen's Reagent}} : \text{no reaction} \\ \underline{\text{Fehling's Solution}} : \text{no reaction}\end{matrix}$ Aliphatic Aldehydes $\begin{matrix}\underline{\text{Tollen's Reagent}} : \text{White ppt.} \\ \underline{\text{Fehling's solution}} : \text{Red ppt.}\end{matrix}$

44.(BC) Aldol is a β-hydroxy carbonyl compound : $-\overset{\beta}{C}-\overset{\alpha}{C}-\overset{}{\underset{}{C}}-$ (OH on β-C, O on C) Claisen-Schmidt condensation is cross-aldol condensation, involving benzaldehydes.

45.(A)