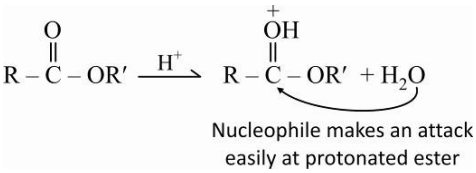
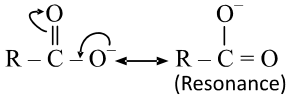
| Daily Tutorial Sheet-4 | Level-1 |
|---|---|

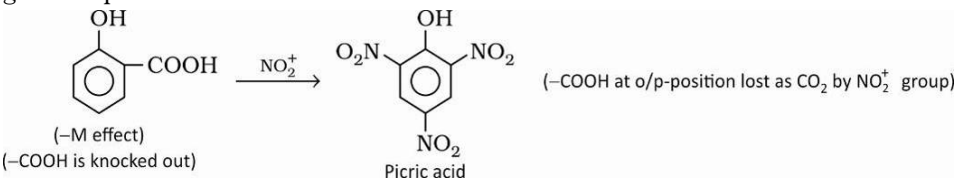
**46.(B)** 


**47.(C)** 

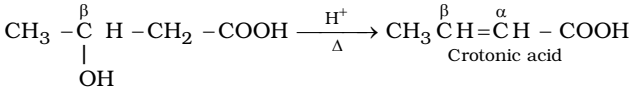

**48.(D)** Both Phenol and succinic acid react with NaOH. Phenol is not strongly acidic to react with $NaHCO_3$.

**49.(A)** HCOOH is easily oxidized by Fehling and Tollen's solution. Fehling solution gives red ppt. with all aldehydes except $C_6H_5CHO$ (aromatic aldehydes).

**50.(D)** Identify strongest acid. EWG are acid strengthening via –I effect, so $F_3C$ – COOH is strongest acid of all given in question.

**51.(A)** 

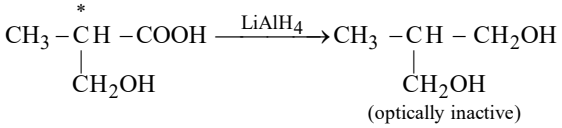

**52.(B)** β-hydroxy acids give α, β-unsaturated acids on dehydration by heating in presence of acids.



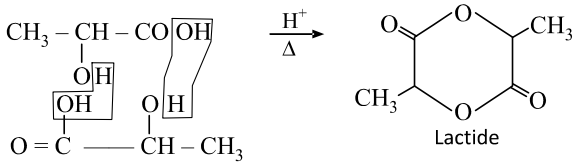

**53.(B)** Note that double bonded 'O' – atom is more nucleophilic and more basic in acids and derivates.

**54.(C)** $C_4H_8O_3$ : (optically active)

Observe that on reduction, it gives an 'achiral' compound, so only (C) satisfies the given condition.




**55.(A)** α-hydroxy acid on heating in acids give Lactides (cyclic diester) via intermolecular esterification.




**56.(A)** Polarity of carbonyl group decreases as size of alkyl group increases due to +I – effect.

Visualise mechanism of acid-catalysed esterification (Refer to module).

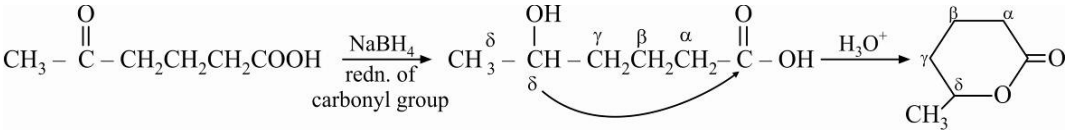
ROH attacks carbonyl group in protonated acid. The larger the size of R (of RCOOH), weaker will be polarisation of carbonyl group and too much steric crowding in tetrahedral complex. Hence the rate of esterification will decrease with increase in size of alkyl group attached to-COOH group. So, the rate follows: $HCOOH > CH_3COOH > CH_3CH_2COOH > (CH_3)_2CHCOOH$

**57.(B)** Ease of esterification w.r.t. alcohol decreases as the size of alkyl group increases in alcohols.

$CH_3OH > CH_3CH_2OH > (CH_3)_2CHOH > (CH_3)_3\,C - OH$

The larger is the size of alcohol, more difficult it will be for an alcohol to attack carbonyl group of protonated acid (steric factors) and too much steric crowding in tetrahedral complex. So ease of esterification follows: $CH_3OH > CH_3CH_2OH > (CH_3)_2CHOH > (CH_3)_3 - C - OH$

**58.(A)** $\gamma$ and $\delta$ -hydroxy acids form Lactones on mild heating in acids.




**59.(C)** $\beta$ -keto acids undergo decarboxylation on heating. 1, 4 & 1, 5 – dicarboxylic acids loses water on heating.

**60.(C)** Visualise intramolecular esterification to give lactone (as discussed above in 58)