

SUBJECT - CHEMISTRY

CLASS - BSc (Hons) PART-11

PAPER - IV

TOPIC - Lactic acid from:

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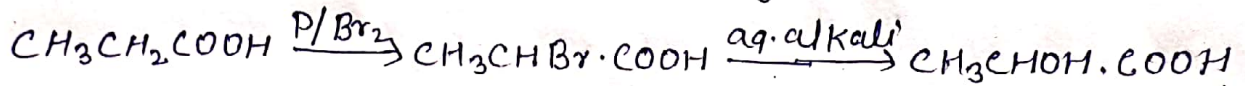
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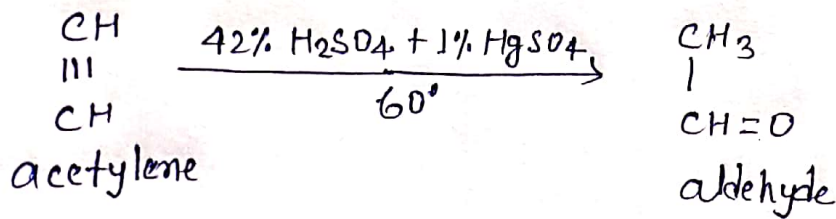
Q How is lactic acid obtained from propanoic acids & acetylene

Ans Lactic acid from

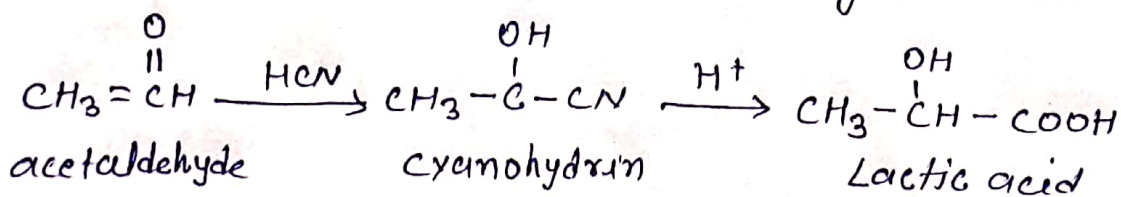
(i) Propanoic acid: Propanoic acid is first converted into α -bromo propanoic acid by reacting with bromine in presence of small amount of red P. Hydrolysis of α -bromo propanoic acid by aq. alkali or moist Ag_2O gives lactic acid.



(ii) Acetylene: Acetylene is firstly converted into acetaldehyde-

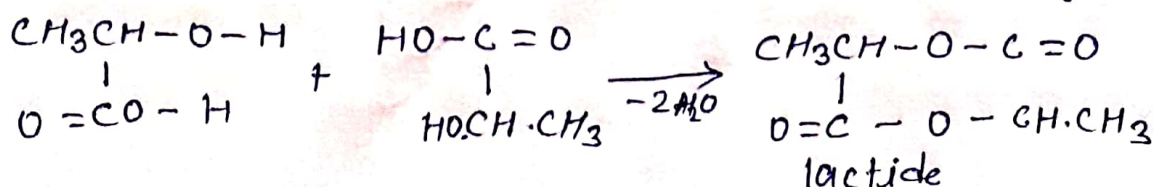


Acetaldehyde is treated with HCN to form cyanohydrin which, on hydrolysis with del. acid gives lactic acid:

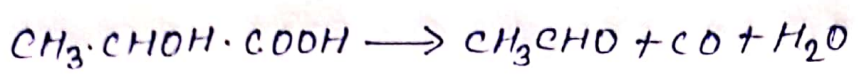


Q what is the action of (i) heat (ii) $KMnO_4$ (iii) H_2SO_4 (iv) I_2 and alkali on lactic acid?

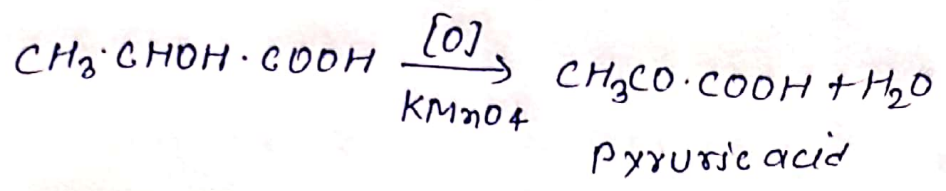
Ans (i) Action of heat: It forms lactide on heating



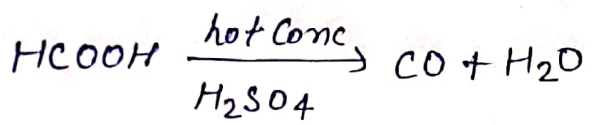
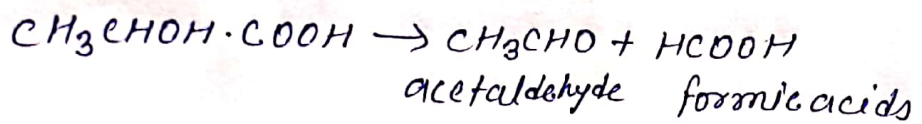
A Portion of Lactic acid also breaks up to acetaldehyde and CO on heating.



(ii) Action of $KMnO_4$: Lactic acid is oxidised to Pyruvic acid



(iii) Action of H_2SO_4 : When heated to 130° with dil. H_2SO_4 Lactic acid decomposes to acetaldehyde and formic acid



Lactic acid is decomposed by hot Conc. H_2SO_4 to CH_3CHO, CO & H_2O

(iv) Action of iodine and alkali: Since it has CH_3CHOH group, it gives iodoform on treatment with I_2 and warm alkali.

