

## Carbonyl Compounds

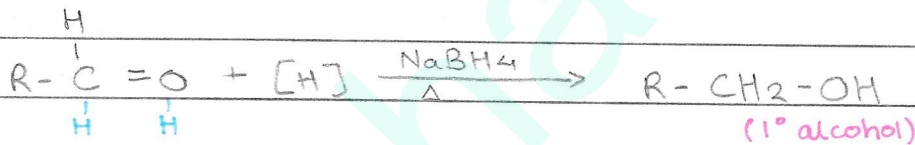
Q-1) What are carbonyl compounds.

> Carbonyl compounds are aldehydes (formed from oxidation of  $1^\circ$ -OH) and ketones (oxidation of  $2^\circ$ -OH).

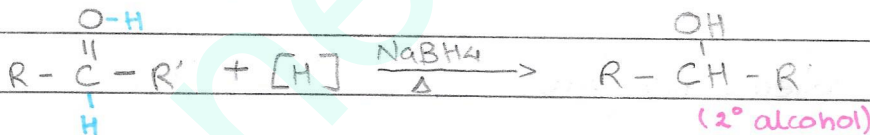
[C=O bond in compounds]

Q-2) Reduction reaction of aldehydes + ketones.

aldehyde

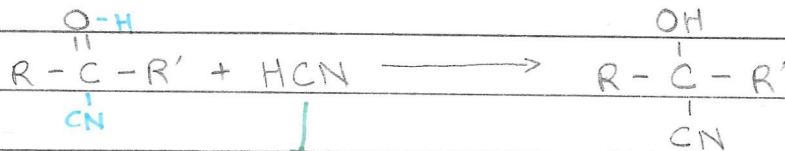


ketone



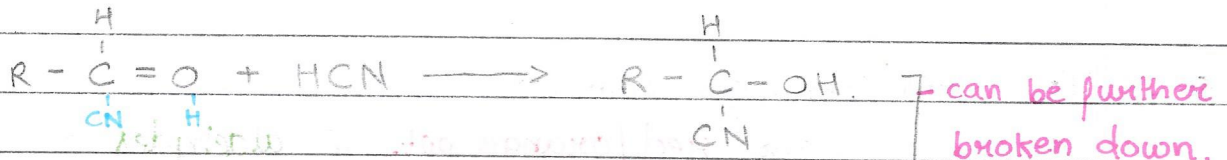
Q-3) Nucleophilic addition with HCN

ketone



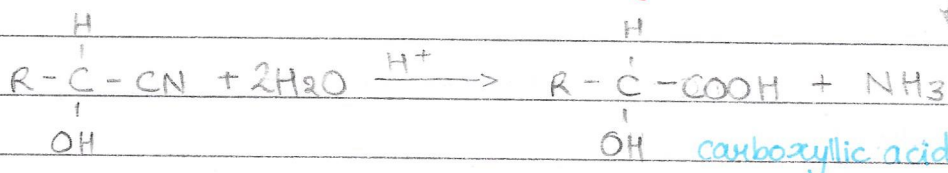
formed by KCN + H<sub>2</sub>SO<sub>4</sub>

aldehyde

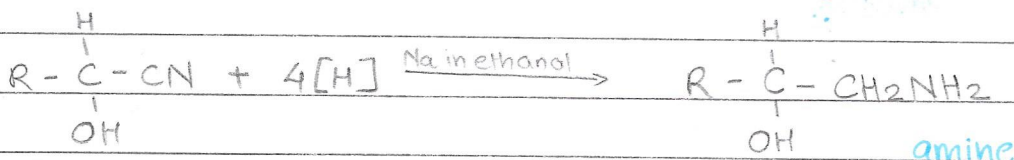


→ used to increase C-chain length.

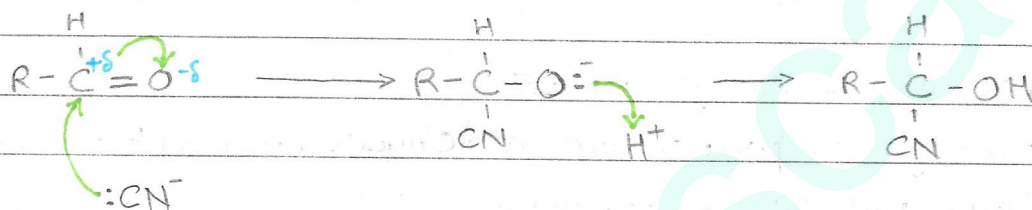
acidic hydrolysis



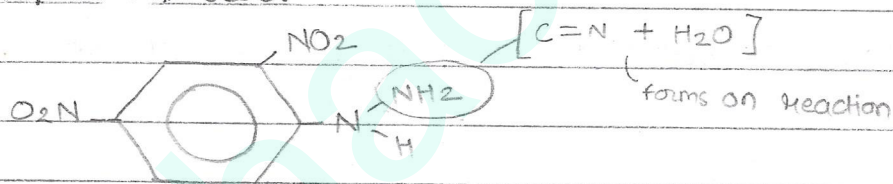
reduction



Mechanism: nucleophilic addition.



Q-4) 2,4 DNP / DNPH test.

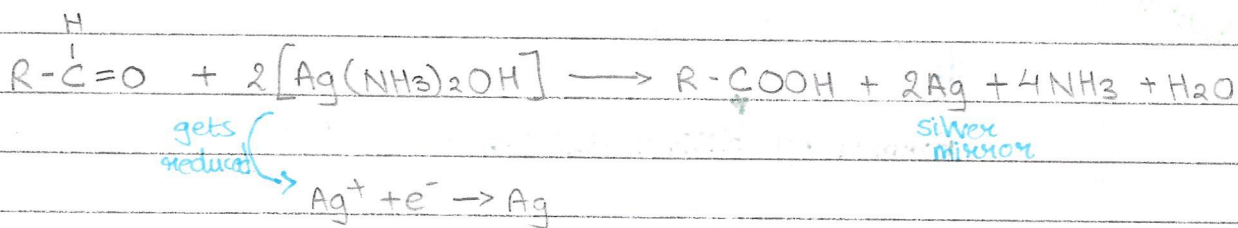


If aldehyde or ketone is present, **orange / red ppt.** will form.

Q-5) Test with Tollen's Reagent.

Solution will give black ppt. or Ag mirror (silver mirror) if **aldehydes** are present.

No change if ketones present  $\rightarrow$  it'll remain colourless



Q-6) Test with Fehling's Solution

Solution will give **red / orange ppt.** if **aldehydes** are present.

-no change (remains blue) if ketones present.

