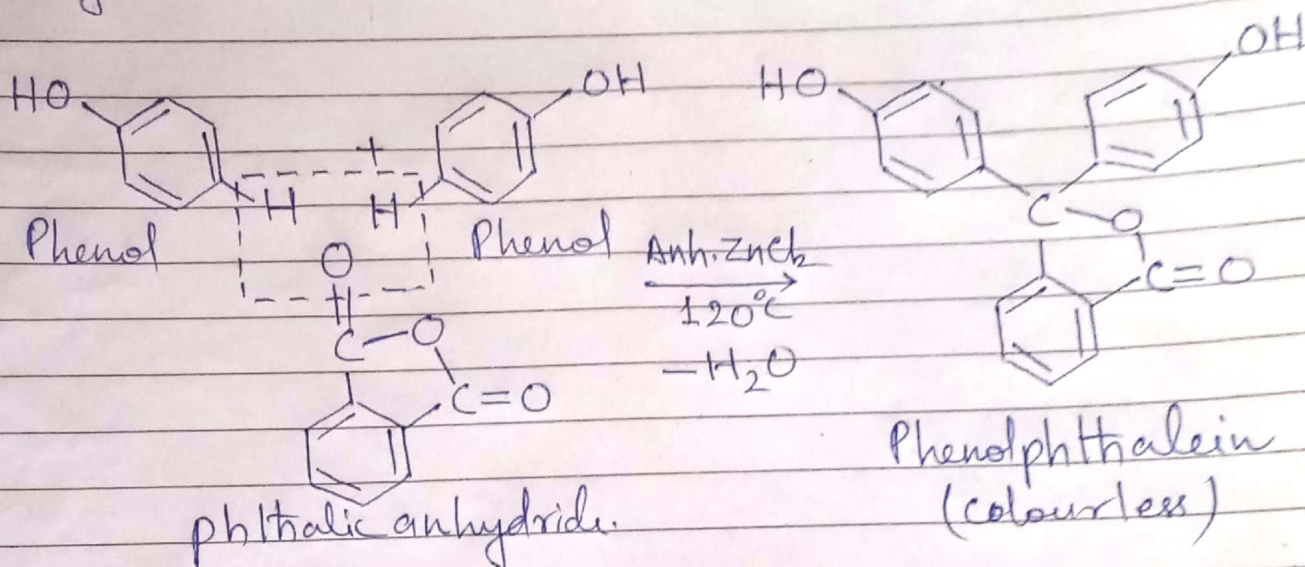


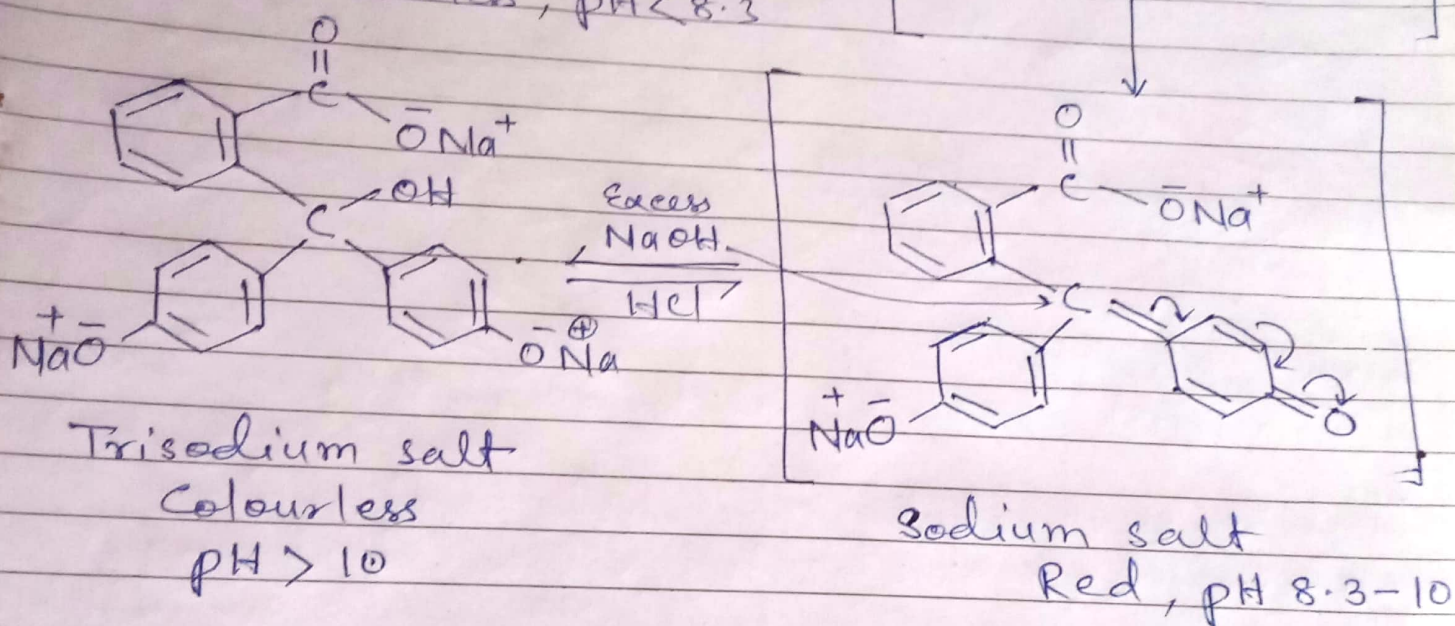
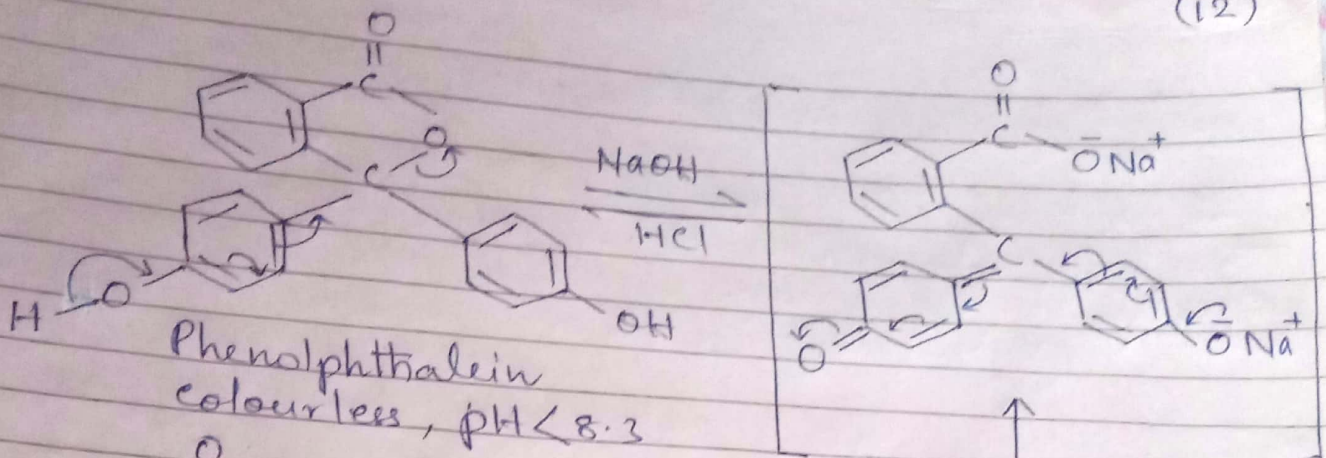
(5) Chemistry and synthesis of phenolphthalein

Phenolphthalein is a phthalein dye. It is synthesised by condensation of phenol with phthalic anhydride in presence of dehydrating agent such as anhydrous $ZnCl_2$ or conc. H_2SO_4 .



Phenolphthalein is a white crystalline solid, insoluble in water, but soluble in alcohol. When dissolved in alkali, it gives red colour solution. This is due to the formation of sodium salt which undergoes resonance and has quinonoid structure. When excess of strong alkali is added, the solution of phenolphthalein becomes colourless again due to loss of quinonoid structure and resonance as shown below:

(12)



- Uses -
- i) Phenolphthalein is not a dye
 - ii) It is used as indicator in acid-base titrations due to colour change in acid-alkali medium.
 - iii) It is also used as laxative in medicine.