

D. B. College (Jaynagar) Leet:-20

Akhilesh Kumar Singh

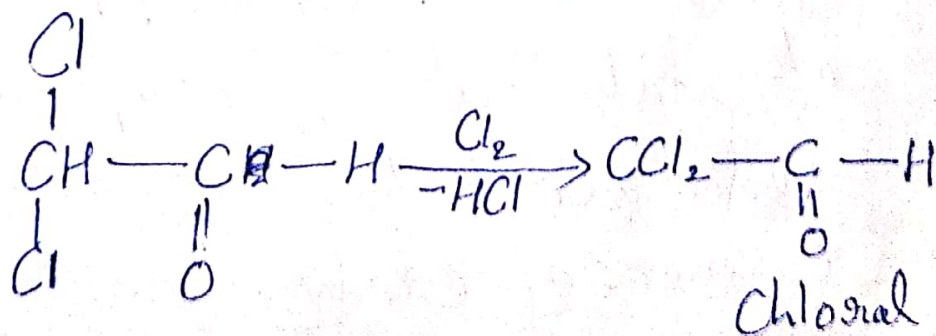
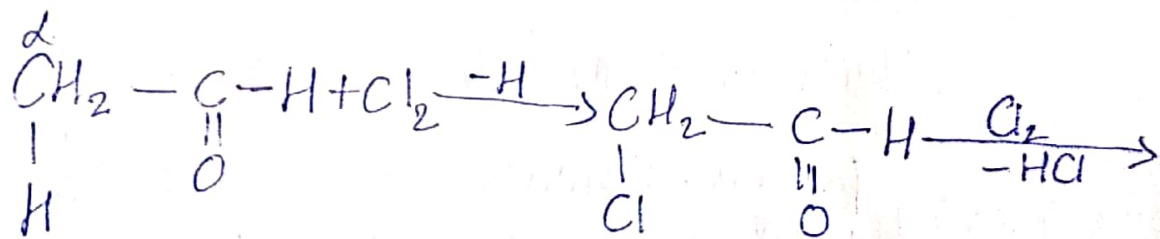
Chemistry department BSc (sub) part-I

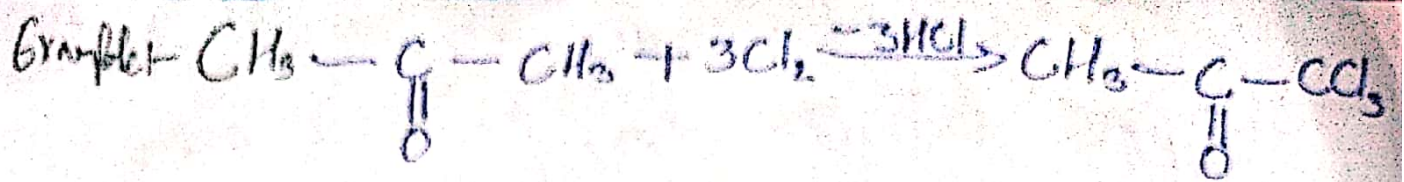
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(4) Reaction with Halogen,

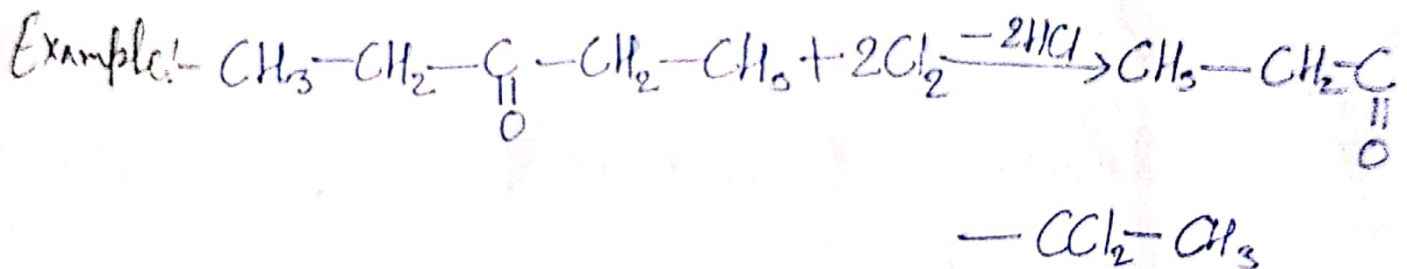
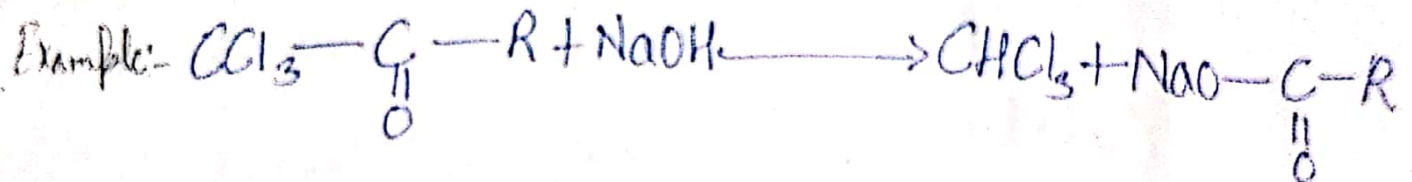
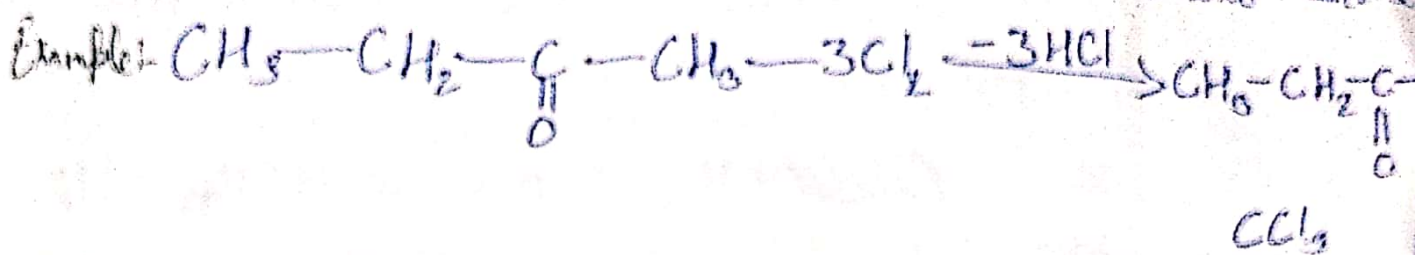
(a) Replacement of α -H atoms:

This reaction is not shown by formaldehyde (HCHO), since α -H atoms are absent, as enolisation does not take place in HCHO.

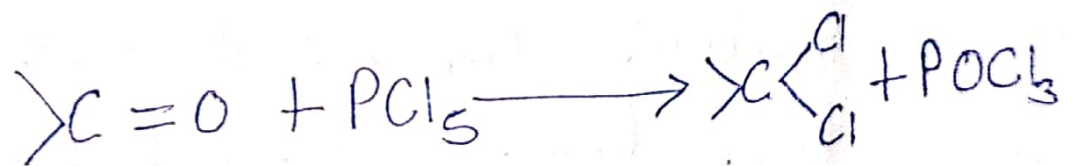




Trichloro acetone



(b) Replacement of O-atom of $>\text{C}=\text{O}$ group:
It takes place by PCl_5 or SOCl_2 .



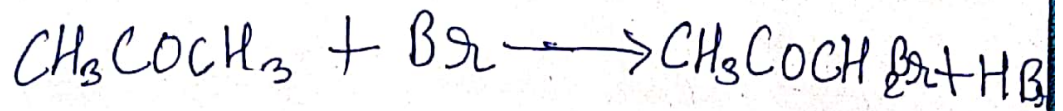
Phosphorus Pentachloride



Thionyl chloride

(c) Halo form reactions:-
Chlorine or bromine replaces one or

more α -hydrogen atoms in aldehydes and ketones, e.g., acetone may be brominated in glacial acetic acid to give monobromoacetone:



The halogenation of Carbonyl Compounds ⁽⁴³⁻⁴⁴⁾ is Catalysed by acids and bases. Let us consider the case of acetone in alkaline solution, tribromoacetone and bromoform are isolated. Thus, the introduction of a ~~second~~ second and a third bromine atom is more rapid than the first. In aqueous sodium hydroxide, the rate has been shown to be independent of the bromine concentration, but first order with respect to both acetone and base

i.e.,

$$\text{Rate} = k[\text{acetone}][\text{OH}^\ominus]$$

