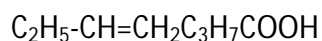
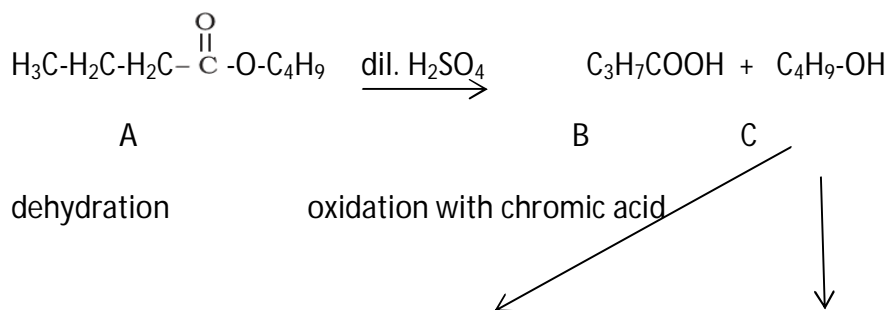


## Statement questions from chapter Aldehydes & Ketones

Q.1 An organic compound (A) (molecular formula  $C_8H_{16}O_2$ ) was hydrolysed with dilute sulphuric acid to give a carboxylic acid (B) and an alcohol (C). Oxidation of (C) with chromic acid produced (B). (C) on dehydration gives but-1-ene. Write equations for the reactions involved.

Solution



But-1-ene B

Q.2 An organic compound contains 69.77% carbon, 11.63% hydrogen and rest oxygen. The molecular mass of the compound is 86. It does not reduce Tollens' reagent but forms an addition compound with sodium hydrogensulphite and give positive iodoform test. On vigorous oxidation it gives ethanoic and propanoic acid. Write the possible structure of the compound.

Solution:

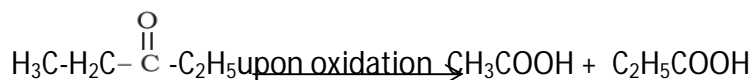
Element	No. of moles	No. of atoms
C	$69.77/12 = 5.81$	$5.81/1.16 = 5$
H	$11.63/1 = 11.63$	$11.63/1.16 = 10$
O	$18.60/16 = 1.16$	$1.16/1.16 = 1$

So the molecular formula of compound is  $C_5H_{10}O$ .

It forms addition compound with sodium hydrogensulphite so it must be a carbonyl compound.

It does not reduce tollen's reagent but it gives iodoform test so it will be a ketone.

On vigorous oxidation it gives ethanoic acid and propanoic acid.



The possible structure of compound is  $\text{H}_5\text{C}_2\text{COC}_2\text{H}_5$

Q.3. An organic compound with the molecular formula  $\text{C}_9\text{H}_{10}\text{O}$  forms 2,4-DNP derivative, reduces Tollens' reagent and undergoes Cannizzaro reaction. On vigorous oxidation, it gives 1,2-benzenedicarboxylic acid. Identify the compound.

Solution:

It gives 2,4 DNP derivative, that means it will be a carbonyl compound.

It reduces tollen's reagent so it will be an aldehyde.

It undergoes cannizzaro reaction which indicates it is an aldehyde with no alpha hydrogen and gives oxidative product 1,2-dibenzenedicarboxylic acid.

So the organic compound is 2-ethylbenzaldehyde.