DPP
DAILY PRACTICE PROBLEMS

Class : XIIth
Date :

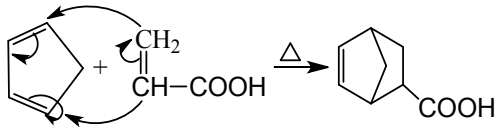
Solutions

Subject : CHEMISTRY
DPP No. : 5

Topic :- Aldehydes, Ketones & Carboxylic Acids

2 **(d)**

The given reaction is an example of Diels-Alder reaction, which is a cycloaddition



3 **(a)**

On complete oxidation the obtained compound shows increment in molecular weight of only 16. It means only one oxygen atom is added here. This condition is fulfilled by only aldehyde which on oxidation gives acid.

$RCHO \xrightarrow{[O]} RCOOH$

∴ Original compound must be

$CH_3CHO \xrightarrow{[O]} CH_3COOH$

mol. wt. 44 mol.wt.60

4 **(d)**

Former reacts with *aq*. HCl.

6 **(a)**

% ratio of C : H : : 6 : 1 and C : O : : 3 : 4

∴ % ratio of C :H :O : :6 :1 :8

		%/at. wt.
∴	% C $= \frac{6}{15} \times 100 = 40$	$\frac{40}{12} = 3.33$
	% H $= \frac{1}{15} \times 100 = 6.66$	$\frac{6.66}{1} = 6.66$
	% O $= \frac{8}{15} \times 100 = 53.3$	$\frac{53.3}{16} = 3.33$

∴ Simplest ratio of C :H : O : : 1 : 2 : 1, *i.e.*, CH_2O

7 **(a)**

$2KCNO + (NH_4)_2SO_4 \rightarrow 2NH_4CNO + K_2SO_4$

$NH_4CNO \xrightarrow{\Delta} NH_2CONH_2$

urea

8 **(c)**

2-pentanone and 3-pentanone can be distinguished by iodoform test.

$CH_3COCH_2CH_2CH_3$(2-pentanone) gives positive iodoform test while $CH_3CH_2COCH_2CH_3$ (3-

pentanone) doesn't give iodoform test.

10 **(b)**

A 40% solution of formaldehyde in water, called formalin, is used for the preservation of biological and anatomical species

11 **(b)**

Aldol condensation is given by acetaldehyde due to the presence of α-hydrogen atom.

$$CH_3CHO + H.CH_2CHO \xrightarrow{\text{Dil.NaOH}} \underset{\underset{\text{aldol}}{\underset{|}{OH}}}{CH_3 - CH - CH_2 - CHO}$$

12 **(d)**

These reactions lead to replacement of oxygen atom of carbonyl group to form hydrazones and oximes.

14 **(d)**

$$C = \frac{38.7}{12} = 3.22 = \frac{3.22}{3.22} = 1$$

$$H = \frac{9.67}{1} = 9.67 = \frac{9.67}{3.22} = 3$$

$$O = \frac{51.63}{16} = 3.22 = \frac{3.22}{3.22} = 1$$

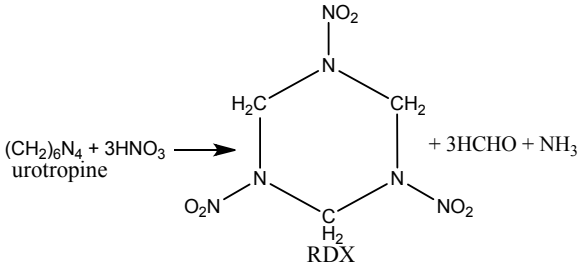
$\therefore$ Empirical formula is CH_3O

15 **(a)**

$$CH_3COCl \xrightarrow[H_2]{Pd/BaSO_4} \underset{(A)}{CH_3CHO} + HCl$$

CH_3COCl is the isomer of $CH_2ClCHO \cdot CH_3CHO$ is the isomer of oxirane *ie*

17 **(d)**



$\therefore$ Nitration of urotropine gives powerful explosive.

18 **(d)**

$$RCOOH + N_3H \longrightarrow RNH_2 + CO_2 + N_2$$

ANSWER-KEY										
Q.	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**
A.	**C**	**D**	**A**	**D**	**C**	**A**	**A**	**C**	**C**	**B**
Q.	**11**	**12**	**13**	**14**	**15**	**16**	**17**	**18**	**19**	**20**
A.	**B**	**D**	**A**	**D**	**A**	**C**	**D**	**D**	**C**	**C**