

(12.08.2022)

Unit 12 – Nomenclature, Structure of FG, Preparation of aldehyde

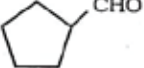
Unit 12. ALDEHYDES, KETONES AND ACIDS

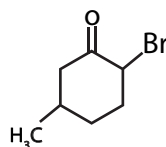
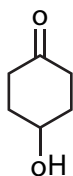
Answer all the questions. Each carry 1 mark. MM - 30

- What is common in aldehyde, ketone and acid? Explain with the help of structure?
- Name the following compounds according to IUPAC system of nomenclature:

(i) $\text{CH}_3\text{CH}(\text{CH}_3)\text{CH}_2\text{CH}_2\text{CHO}$	(iii) $\text{CH}_3\text{CH}_2\text{COCH}(\text{C}_2\text{H}_5)\text{CH}_2\text{CH}_2\text{Cl}$
(ii) $\text{CH}_3\text{CH}=\text{CHCHO}$	(iv) $\text{CH}_3\text{COCH}_2\text{COCH}_3$
(v) $\text{CH}_3\text{CH}(\text{CH}_3)\text{CH}_2\text{C}(\text{CH}_3)_2\text{COCH}_3$	(vi) $(\text{CH}_3)_3\text{CCH}_2\text{COOH}$
(vii) $\text{OHCC}_6\text{H}_4\text{CHO}-p$	
- Draw the structures of the following compounds.

(i) 3-Methylbutanal	(ii) <i>p</i> -Nitropropiophenone
(iii) <i>p</i> -Methylbenzaldehyde	(iv) 4-Methylpent-3-en-2-one
(v) 4-Chloropentan-2-one	(vi) 3-Bromo-4-phenylpentanoic acid
(vii) <i>p,p'</i> -Dihydroxybenzophenone	(viii) Hex-2-en-4-ynoic acid
- Write the IUPAC names of the following ketones and aldehydes. Wherever possible, give also common names.

(i) $\text{CH}_3\text{CO}(\text{CH}_2)_4\text{CH}_3$	(ii) $\text{CH}_3\text{CH}_2\text{CHBrCH}_2\text{CH}(\text{CH}_3)\text{CHO}$
(iii) $\text{CH}_3(\text{CH}_2)_5\text{CHO}$	(iv) $\text{Ph}-\text{CH}=\text{CH}-\text{CHO}$
(v) 	(vi) PhCOPh



Give names of the reagents to bring about the following transformations:

- | | |
|---|------------------------------------|
| (i) Hexan-1-ol to hexanal | (ii) Cyclohexanol to cyclohexanone |
| (iii) <i>p</i> -Fluorotoluene to <i>p</i> -fluorobenzaldehyde | (iv) Ethanenitrile to ethanal |
| (v) Allyl alcohol to propenal | (vi) But-2-ene to ethanal |

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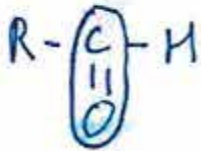
Q-1 The common thing is carbonyl group [R-C(=O)] this group

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Aldehyde

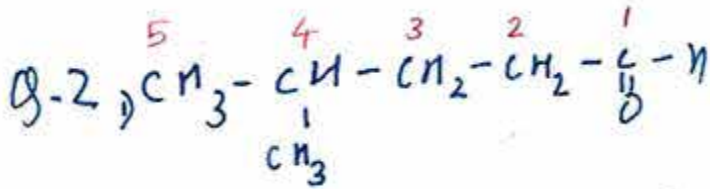
Ketone

Acid



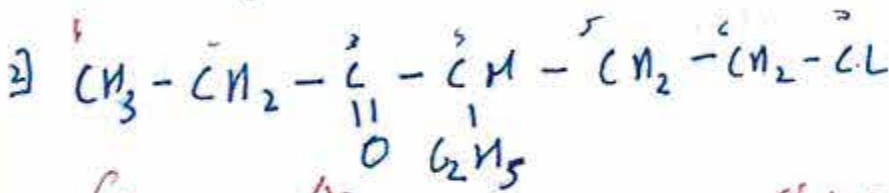
this is carbonyl group which is common

good



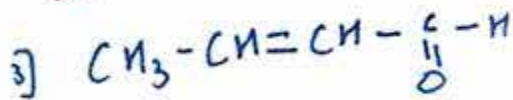
5 carbon atoms in the chain. So the base name is pent not but

4-Methylbutanal

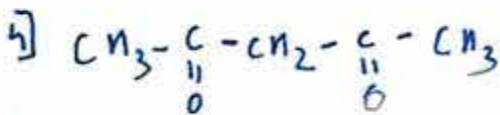


7-Chloro-5-ethylhexan-3-one

Chlorine atom is attached to 6th C.

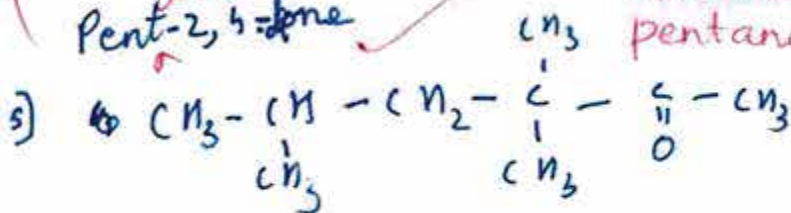


Butan-2-enal

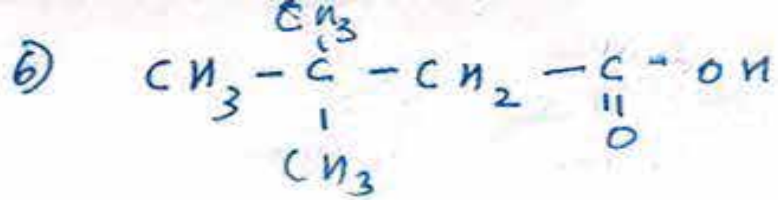


Pent-2,4-dione

In the case of dione, the 'e' of pentane is retained

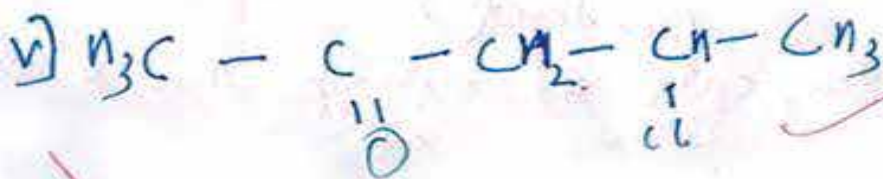
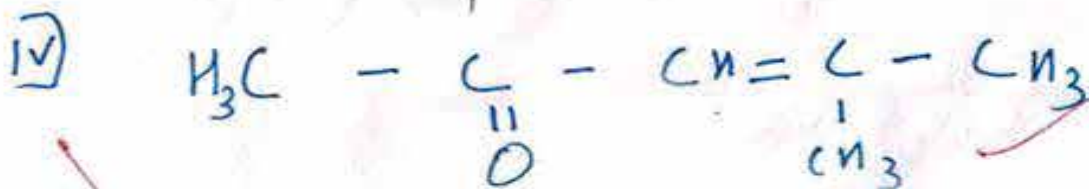
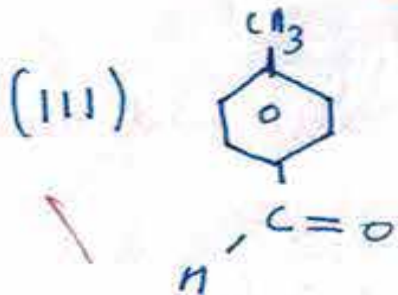
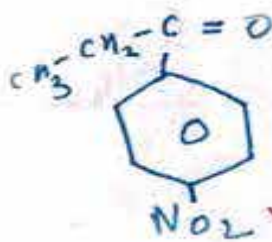
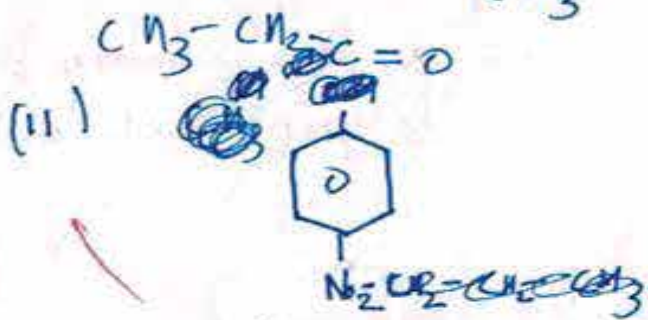
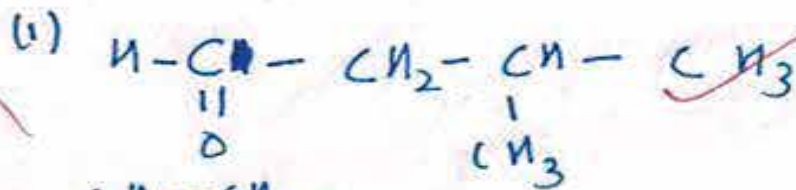


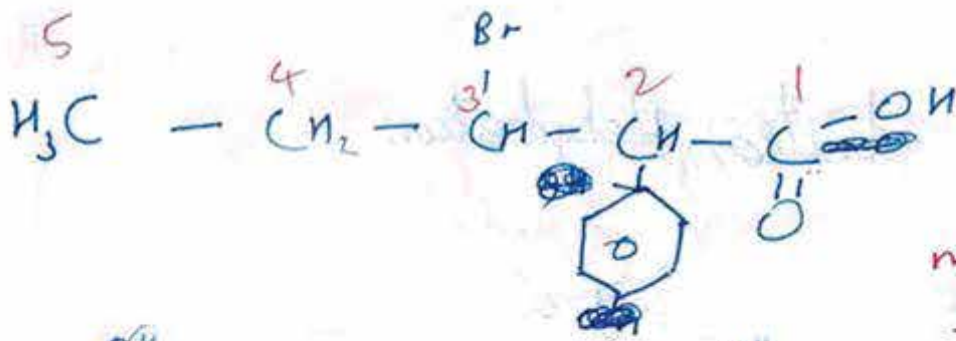
3,3,5-Trimethylhexan-2-one



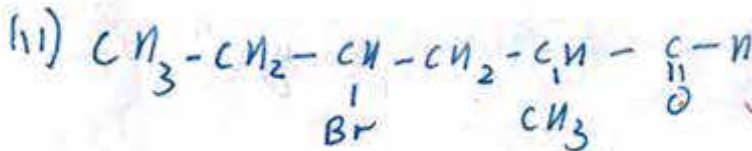
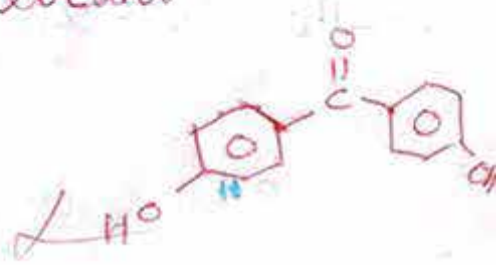
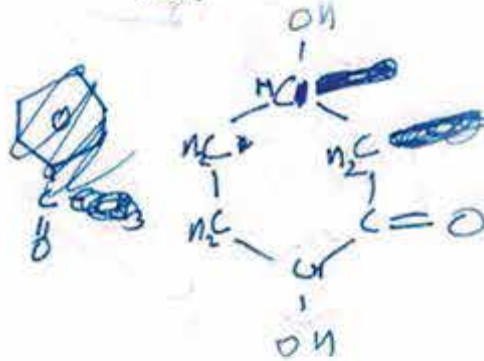
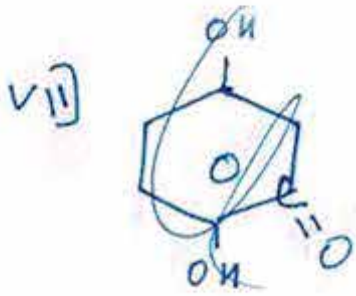
3,3-Dimethylbutanoic acid

Q-3





functional group must get lower locant



4-Bromo-2-methylhexanoic acid



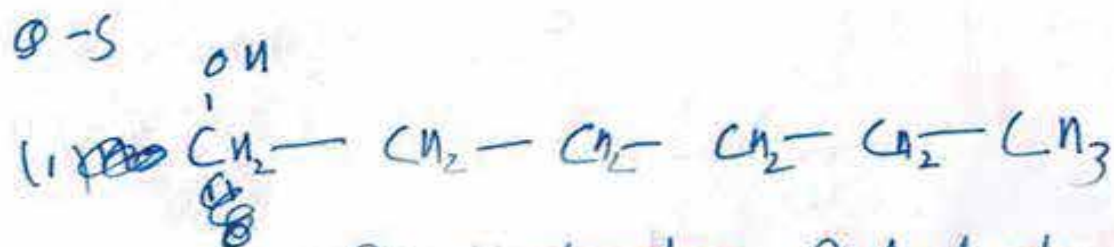
Cyclopentanal

cyclopentanecarbaldehyde

In the case of cyclic aldehyde 'carbaldehyde' is used.

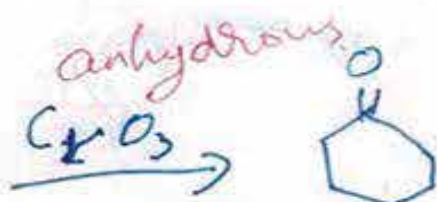
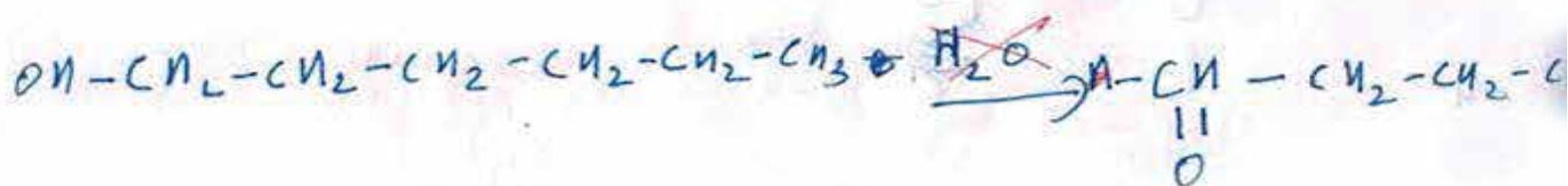
(vii) 4-Hydroxycyclohexanone

(viii) 2-Bromo-5-Methylcyclohexanone

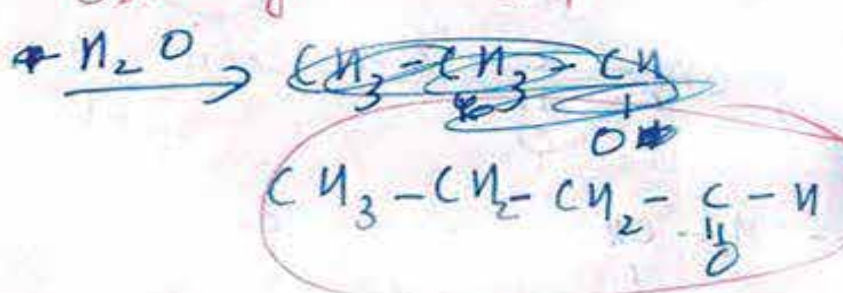
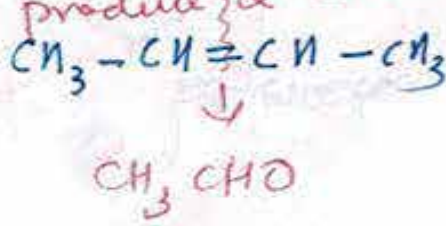


By ~~hydration~~ ~~dehydration~~

oxidation - PCC



π bond breaks to produce 2 autaldehyde molecules.



By using Pd, BaSO₄



Oxidation of CH₃ group to -CHO group

Name : Samarth Tahilioni

Date:

Class : XII

Marks: 17/27

Subject : Chemistry

Chapter: Aldehydes, ketones & carboxylic acid

Topics for Improvement	Nomenclature of cyclic aldehydes, ketones. Preparation of aldehydes by oxidation and ozonolysis.
Learning Techniques	Practice more questions Use Hexagonal concept map.
Oversight	proper numbering of carbon atoms in the longest chain must be thorough, to identify the base name of a molecule.
Other Remarks:	

Divya Dey

Teachers Name & Sign

Parents Name & Sign