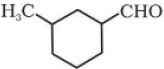
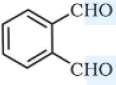
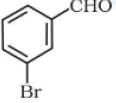
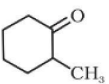


# Aldehydes and Ketones

## Set – 1

Table 12.1: Common and IUPAC Names of Some Aldehydes and Ketones

Structure	Common name	IUPAC name
<b>Aldehydes</b>		
HCHO	Formaldehyde	Methanal
CH <sub>3</sub> CHO	Acetaldehyde	Ethanal
(CH <sub>3</sub> ) <sub>2</sub> CHCHO	Isobutyraldehyde	2-Methylpropanal
	$\gamma$ -Methylcyclohexanecarbaldehyde	3-Methylcyclohexanecarbaldehyde
CH <sub>3</sub> CH(OCH <sub>3</sub> )CHO	$\alpha$ -Methoxypropionaldehyde	2-Methoxypropanal
CH <sub>3</sub> CH <sub>2</sub> CH <sub>2</sub> CH <sub>2</sub> CHO	Valeraldehyde	Pentanal
CH <sub>2</sub> =CHCHO	Acrolein	Prop-2-enal
	Phthalaldehyde	Benzene-1,2-dicarbaldehyde
	<i>m</i> -Bromobenzaldehyde	3-Bromobenzene-carbaldehyde or 3-Bromobenzaldehyde
<b>Ketones</b>		
CH <sub>3</sub> COCH <sub>2</sub> CH <sub>2</sub> CH <sub>3</sub>	Methyl <i>n</i> -propyl ketone	Pentan-2-one
(CH <sub>3</sub> ) <sub>2</sub> CHCOCH(CH <sub>3</sub> ) <sub>2</sub>	Diisopropyl ketone	2,4-Dimethylpentan-3-one
	$\alpha$ -Methylcyclohexanone	2-Methylcyclohexanone
(CH <sub>3</sub> ) <sub>2</sub> C=CHCOCH <sub>3</sub>	Mesityl oxide	4-Methylpent-3-en-2-one

**Q1. Which of the following is the correct IUPAC name for 'Isobutyraldehyde'?**

- A. 2-methylbutanal
- B. 2-methylpropanal
- C. -methylbutanal
- D. Butanal

**Ans. (B)**

**Q2. Which of the following is the correct IUPAC name for the given compound?**

- A.  $\alpha$ 3-Methylcyclohexanecarbaldehyde
- B. 3-methylcyclohexanol



- C. Cycloheptanecarbaldehyde
- D. None of these

**Ans. (A)**

**Q3. Which of the following is the correct IUPAC name for 'valeraldehyde'?**

- A. Pentanal
- B. 2-methylpentanal
- C. Butanal
- D. 2-methylbutanal

**Ans. (A)**

**Q4. Which of the following is the correct common name for 'Benzene-1,2-dicarbaldehyde'?**

- A. Valeraldehyde
- B. Pthaldehyde
- C. Acetophenylaldehyde
- D. Acrolein

**Ans. (B)**

**Q5. Which of the following compounds contain an aromatic ring?**

- A. Valeraldehyde
- B. Pthaldehyde
- C. Mesityl oxide
- D. Acrolein

**Ans. (B)**

**Q6. Which of the following is the correct IUPAC name for 'Diisopropyl ketone'?**

- A. Hexan-3-one
- B. 2,4-dimethylpentan-3-one
- C. 3,3-dimethylpentan-4-one
- D. None of these

**Ans. (B)**

**Q7. Which of the following is the correct IUPAC name for the given compound ?**



- A. 2-Methylcyclohexanone
- B. 2-methylcyclohexane ketone
- C. 1-keto-2-methylcyclohexane
- D. None of these

Ans. (A)

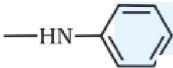

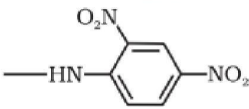
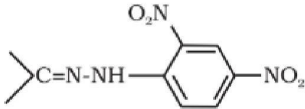
**Q8. Which of the following is the correct IUPAC name for 'mesityl oxide'?**

- A. Hex-3-en-2-one
- B. 4-Methylhex-3-en-2-one
- C. 4-Methylpent-3-en-2-one
- D. 4-Methylpent-4-en-2-one

Ans. (C)

## Set – 2

**Table 12.2: Some N-Substituted Derivatives of Aldehydes and Ketones (>C=N-Z)**

Z	Reagent name	Carbonyl derivative	Product name
-H	Ammonia	$\text{>C=NH}$	Imine
-R	Amine	$\text{>C=NR}$	Substituted imine (Schiff's base)
-OH	Hydroxylamine	$\text{>C=N-OH}$	Oxime
-NH <sub>2</sub>	Hydrazine	$\text{>C=N-NH}_2$	Hydrazone
-HN- 	Phenylhydrazine	$\text{>C=N-NH-}$ 	Phenylhydrazone
-HN- 	2,4-Dinitrophenylhydrazine	$\text{>C=N-NH-}$ 	2,4 Dinitrophenylhydrazone
-NH-C(=O)-NH <sub>2</sub>	Semicarbazide	$\text{>C=N-NH-C(=O)-NH}_2$	Semicarbazone

\* 2,4-DNP-derivatives are yellow, orange or red solids, useful for characterisation of aldehydes and ketones.



**Q1. Which of the following products is formed when a carbonyl compound reacts with ammonia?**

- A. Oxime
- B. Amide
- C. Imine
- D. Guanidine derivative

**Ans. (C)**

**Q2. With which among the following reagents, a carbonyl compound reacts to form Schiff's base?**

- A. p-Roosaniline
- B. Brady's reagent
- C. Primary amine
- D. Ethylene glycol

**Ans. (C)**

**Q3. Which of the following products is formed when a carbonyl compound reacts with hydroxylamine?**

- A. Oxime
- B. Imine
- C. Semicarbazone
- D. 2,4-DNP derivative

**Ans. (A)**

**Q4. 2,4-DNP test is used to detect the presence of which functional group?**

- A. Aldehydes/Ketones
- B. Amine
- C. Amide
- D. Carboxylic acid

**Ans. (A)**

**Q5. Which of the following is the correct IUPAC name of Brady's reagent, which on reaction with carbonyl compounds produces yellow, orange or red solids?**



- A. 2,4-dinitrophenylhydrazine
- B. Phenylhydrazine
- C. 2,4,6-trinitrophenylhydrazine
- D. 2,4-dinitroaniline

**Ans. (A)**

**Q6. How many nitrogen atoms are present in a semicarbazone molecule of acetone?**

- A. 2
- B. 3
- C. 1
- D. 0

**Ans. (B)**

**Q7. How many nucleophilic sites are present in a semicarbazide molecule?**

- A. 1
- B. 2
- C. 0
- D. 3

**Ans. (A)**

