

A-Level Chemistry

Name: _____ Score: _____

1. The difference between an aldehyde and a ketone is that:
 - ☐ a ketone has an -OH group
 - ☐ an aldehyde has no C=O group
 - ☐ they have different molecular formulas always
 - ☐ the C=O is on the end of the chain in an aldehyde, and in the middle in a ketone
2. An orange precipitate with 2,4-DNPH shows the compound is:
 - ☐ an alkane
 - ☐ a carboxylic acid only
 - ☐ an aldehyde or a ketone (a carbonyl compound)
 - ☐ an alcohol
3. Oxidising a secondary alcohol gives:
 - ☐ a carboxylic acid
 - ☐ an aldehyde
 - ☐ a ketone
 - ☐ an alkene
4. A silver mirror with Tollens' reagent indicates:
 - ☐ a ketone
 - ☐ an aldehyde
 - ☐ an alkene
 - ☐ an alcohol
5. Reducing a carbonyl compound (with NaBH_4) gives:
 - ☐ an alcohol
 - ☐ an alkene
 - ☐ a carboxylic acid
 - ☐ a halogenoalkane
6. Tollens' reagent gives a silver _____ with an aldehyde but not a ketone.

7. Ketones have the carbonyl group at the end of the carbon chain.
- ☐ True ☐ False
8. Fehling's solution turns from blue to a brick-red precipitate with:
- ☐ an alkane
- ☐ a ketone
- ☐ a tertiary alcohol
- ☐ an aldehyde
9. In the nucleophilic addition of HCN, the first step is:
- ☐ CN^- attacking the slightly positive carbonyl carbon
- ☐ a carbocation forming
- ☐ the $\text{C}=\text{O}$ bond forming
- ☐ the oxygen taking a proton
10. A pale-yellow precipitate of CHI_3 in the iodoform test shows the compound has the:
- ☐ $-\text{COOH}$ group
- ☐ $\text{CH}_3\text{CO}-$ group
- ☐ $\text{C}-\text{X}$ bond
- ☐ $\text{C}=\text{C}$ bond

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1. the C=O is on the end of the chain in an aldehyde, and in the middle in a ketone

Both have the carbonyl C=O; in an aldehyde it is terminal (–CHO), in a ketone it is between two carbons.

2. an aldehyde or a ketone (a carbonyl compound)

2,4-DNPH gives an orange precipitate with any carbonyl (aldehyde or ketone).

3. a ketone

Secondary alcohols oxidise to ketones; primary alcohols (with distillation) give aldehydes.

4. an aldehyde

Aldehydes are oxidised and reduce Tollens' to silver (a mirror); ketones give no change.

5. an alcohol

Reduction turns a carbonyl back into an alcohol (aldehyde → primary, ketone → secondary).

6. mirror

Aldehydes are oxidised; ketones are not.

7. False

False. Aldehydes have the carbonyl group at the end of the chain; ketones have it in the middle, bonded to two carbons.

8. an aldehyde

An aldehyde reduces Fehling's to a brick-red precipitate; a ketone does not react.

9. CN[–] attacking the slightly positive carbonyl carbon

The cyanide nucleophile attacks the $\delta+$ carbon, breaking the C=O; the O[–] then takes an H⁺.

10. CH₃CO– group

The iodoform (CHI₃) test is positive for compounds containing the CH₃CO– group (and CH₃CH(OH)–).