

Aldehydes, Ketones and Carboxylic Acids

NEET previous year questions · Chemistry

6 questions from the official papers: NEET 2026 (1), Re-NEET 2026 (3), NEET 2020 (2). Each is followed by its answer and a worked solution written by BrainIt. Generated on 23 October 2026.



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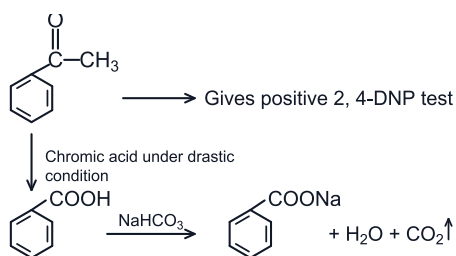
1. NEET 2026 · Q58

Compound P (C_8H_8O) gives a red-orange precipitate with 2,4-DNP reagent but does not reduce Fehling's reagent or give a positive Tollens' test. On drastic oxidation with chromic acid, P gives an aromatic product Q that produces effervescence with aqueous $NaHCO_3$. Compounds P and Q, respectively, are:

- (1) $P = \text{acetophenone}$, $Q = \text{benzoic acid}$ (2) $P = \text{p-tolualdehyde}$, $Q = \text{p-toluenesulfonic acid}$
 (3) $P = \text{p-tolualdehyde}$, $Q = \text{p-toluenesulfonic acid}$ (4) $P = \text{acetophenone}$, $Q = \text{benzoic acid}$

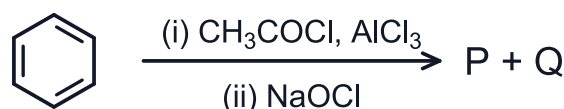
Answer (4)

Sol. P is acetophenone, C_8H_8O . Its aryl-ketone carbonyl gives the red-orange 2,4-DNP precipitate, while as a ketone it is negative to BOTH Fehling's and Tollens'; a positive Tollens' test would mean an aldehyde, so an aromatic aldehyde such as p-tolualdehyde is excluded. Drastic oxidation with chromic acid cleaves the methyl ketone to benzoic acid: $C_6H_5COCH_3 \xrightarrow{CrO_3/H^+} C_6H_5COOH$. Q is benzoic acid, whose $-COOH$ liberates CO_2 with aqueous $NaHCO_3$: $C_6H_5COOH + NaHCO_3 \rightarrow C_6H_5COONa + CO_2 + H_2O$. Option (1) gives the wrong oxidation product for acetophenone; options (2) and (3) take P to be p-tolualdehyde, which the Tollens' clue rules out.



2. Re-NEET 2026 · Q46

For the following reaction sequence, choose the correct option.



- (1) If **P** is the sodium salt of a carboxylic acid, **Q** is a primary alcohol
 (2) **P** and **Q** are aromatic compounds
 (3) If **P** gives a carboxylic acid on acidification, **Q** gives a poisonous gas on exposure to air and light
 (4) Both **P** and **Q** are carbonyl compounds

Answer (3)

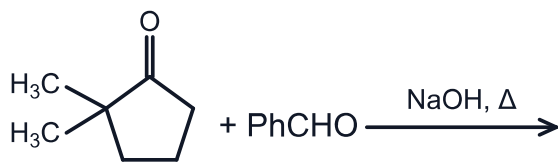
Sol. Friedel-Crafts acylation converts benzene to acetophenone, and sodium hypochlorite then carries out the haloform reaction on the methyl ketone, giving sodium benzoate (P) and chloroform (Q). Acidifying sodium benzoate liberates benzoic acid, and chloroform slowly oxidises in air and light to phosgene, $COCl_2$, which is highly poisonous - the reason chloroform is stored in dark bottles with a little ethanol. NCERT Class 12, Aldehydes, Ketones and Carboxylic Acids (haloform reaction); chloroform's oxidation is in Haloalkanes and Haloarenes.

Why the other options are wrong:

- (1) identifies P correctly but calls chloroform a primary alcohol, confusing the haloform product with a reduction product
- (2) chloroform contains no ring and is not aromatic, so both products cannot be aromatic
- (4) neither the carboxylate salt nor chloroform retains a $C=O$ available as a carbonyl compound in the sense intended

3. Re-NEET 2026 · Q82

The compound that CANNOT be obtained from the aldol condensation reaction shown below, is



- (1)
- (2)
- (3)
- (4)

Answer (1)

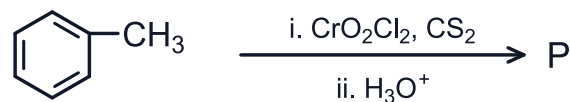
Sol. The ketone has α -hydrogens only at C-5, because C-2 already carries two methyl groups and no hydrogen. Cross-aldol with benzaldehyde followed by dehydration therefore gives the benzylidene product at C-5, available as both geometrical isomers (options (2) and (4)). Self-condensation between two ketone molecules places the new double bond BETWEEN the α -carbon of one ring and the former carbonyl carbon of the other, which is the exocyclic alkene of option (3). Option (1) shows the rings joined by a single bond with the alkene sitting inside the second ring - no addition-elimination sequence produces that connectivity. NCERT Class 12, Aldehydes, Ketones and Carboxylic Acids.

Why the other options are wrong:

- (2) is obtainable - the standard cross-aldol condensation product with the non-enolisable aldehyde
- (3) is obtainable - the self-aldol condensation product, since the ketone does possess one enolisable position
- (4) is obtainable - simply the other geometrical isomer of the same benzylidene product

4. Re-NEET 2026 · Q86

Consider the following reaction, and choose the correct option.



- (1) On treating compound **P** with saturated NaHCO_3 solution, brisk effervescence is observed
- (2) Compound **P** can be prepared by treating benzene with anhydrous AlCl_3 and CH_3COCl
- (3) On treatment with bromine water, compound **P** gives a white precipitate
- (4) Compound **P** is obtained by the hydrogenation of benzoyl chloride with Pd on BaSO_4

Answer (4)

Sol. Chromyl chloride in carbon disulphide oxidises the methyl group of toluene only as far as the aldehyde, and hydrolysis of the chromium complex releases benzaldehyde - the Etard reaction. Benzaldehyde is exactly the product of Rosenmund reduction, in which benzoyl chloride is hydrogenated over palladium poisoned with barium sulphate, so option (4) is a genuine alternative preparation. NCERT Class 12, Aldehydes, Ketones and Carboxylic Acids (preparation of aldehydes).

Why the other options are wrong:

- (1) effervescence with bicarbonate is a test for carboxylic ACIDS; an aldehyde is not acidic enough to release CO_2
- (2) acylation of benzene with acetyl chloride gives acetophenone, a ketone, not benzaldehyde
- (3) a white precipitate with bromine water is characteristic of activated rings such as phenol or aniline, not of benzaldehyde

5. NEET 2020 · Q104

Reaction between acetone and methylmagnesium chloride followed by hydrolysis will give :

- (1) Sec. butyl alcohol (2) Tert. butyl alcohol
- (3) Isobutyl alcohol (4) Isopropyl alcohol

Answer (2)

Sol. The reaction of acetone with methylmagnesium chloride forms a tertiary alkoxide, which upon hydrolysis yields tert-butyl alcohol. This follows the Grignard reagent mechanism where the nucleophilic attack occurs at the carbonyl carbon, leading to the formation of a tertiary alcohol. Chapter: Aldehydes, Ketones and Carboxylic Acids.

6. NEET 2020 · Q118

Reaction between benzaldehyde and acetophenone in presence of dilute NaOH is known as

- (1) Cannizzaro's reaction
- (2) Cross Cannizzaro's reaction
- (3) Cross Aldol condensation
- (4) Aldol condensation

Answer (3)

Sol. The reaction between benzaldehyde and acetophenone in the presence of dilute NaOH is a cross aldol condensation. This reaction involves the condensation of an aldehyde with a ketone to form a β -hydroxy ketone. Chapter: Aldehydes, Ketones and Carboxylic Acids.

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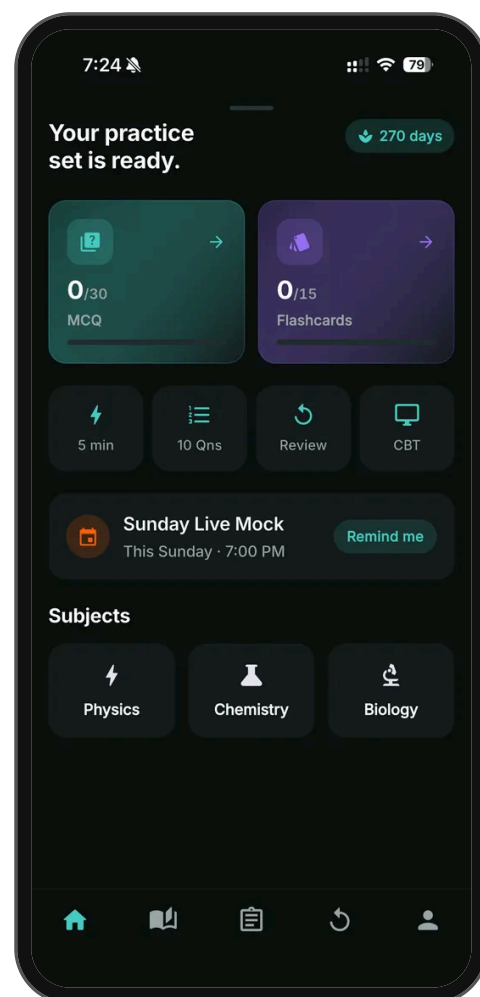
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