

Haloalkanes and Haloarenes

NEET previous year questions · Chemistry

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



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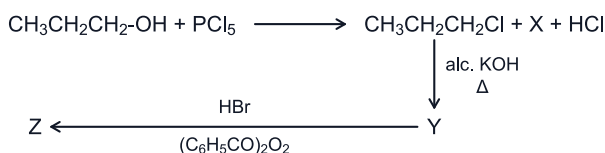
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1. NEET 2026 · Q67

In the following reaction sequence, X and Z respectively are:



- (1) $\text{X} = \text{POCl}_3$; $\text{Z} = \text{CH}_3\text{CH}(\text{Br})\text{CH}_3$
- (2) $\text{X} = \text{POCl}_3$; $\text{Z} = \text{CH}_3\text{CH}_2\text{CH}_2\text{Br}$
- (3) $\text{X} = \text{H}_3\text{PO}_3$; $\text{Z} = \text{CH}_3\text{CH}(\text{Br})\text{CH}_3$
- (4) $\text{X} = \text{H}_3\text{PO}_3$; $\text{Z} = \text{CH}_3\text{CH}_2\text{CH}_2\text{Br}$

Answer (2)

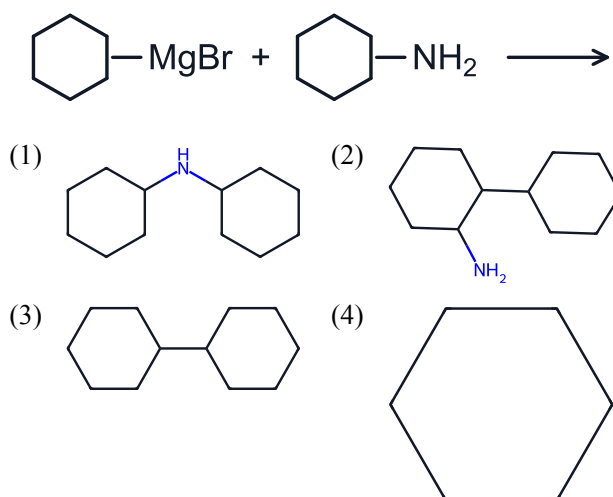
Sol. Propan-1-ol reacting with PCl_5 gives 1-chloropropane together with phosphoryl chloride (POCl_3) and HCl , so $\text{X} = \text{POCl}_3$. Alcoholic KOH dehydrohalogenates 1-chloropropane to propene (Y). Addition of HBr in the presence of a peroxide follows the anti-Markovnikov (peroxide/Kharasch) effect, placing Br on the terminal carbon to give 1-bromopropane, so $\text{Z} = \text{CH}_3\text{CH}_2\text{CH}_2\text{Br}$. Hence $\text{X} = \text{POCl}_3$, $\text{Z} = \text{CH}_3\text{CH}_2\text{CH}_2\text{Br}$.

Why the other options are wrong:

- (1) Wrong: peroxide effect gives 1-bromopropane, not isopropyl bromide.
- (3) Wrong: PCl_5 gives POCl_3 (not H_3PO_3) and Z is the primary bromide.
- (4) Wrong: PCl_5 gives POCl_3 , not H_3PO_3 (H_3PO_3 comes from PCl_3).

2. Re-NEET 2026 · Q72

One of the products formed in the following reaction is



Answer (4)

Sol. The reactants are cyclohexylmagnesium bromide and cyclohexylamine. A Grignard reagent is a very strong base and is destroyed by an acidic N-H proton:
 $\text{C}_6\text{H}_{11} - \text{MgBr} + \text{C}_6\text{H}_{11} - \text{NH}_2 \rightarrow \text{C}_6\text{H}_{12} + \text{C}_6\text{H}_{11} - \text{NH} - \text{MgBr}$
 The organic product derived from the Grignard reagent is therefore cyclohexane, option (4); no new C-C or C-N bond is formed.
 NCERT Class 12, Haloalkanes and Haloarenes (Grignard reagents).

Why the other options are wrong:

- (1) assumes the Grignard carbon substitutes at nitrogen; proton transfer occurs instead
- (2) assumes C-C coupling while retaining the amino group, but there is no electrophilic carbon or coupling catalyst
- (3) assumes direct coupling of the two cyclohexyl groups rather than acid-base proton transfer

3. NEET 2020 · Q92

Elimination reaction of 2-Bromo-pentane to form pent-2-ene is

Statement I: β -Elimination reaction

Statement II: Follows Zaitsev rule

Statement III: Dehydrohalogenation reaction

Statement IV: Dehydration reaction

- | | |
|----------------------|-----------------------|
| (1) (I), (III), (IV) | (2) (II), (III), (IV) |
| (3) (I), (II), (IV) | (4) (I), (II), (III) |

Answer (4)

Sol. The elimination reaction of 2-Bromo-pentane to form pent-2-ene is a β -elimination reaction, follows Zaitsev's rule, and is a dehydrohalogenation reaction. Dehydration involves removing a water molecule, which is not the case here. Chapter: Haloalkanes and Haloarenes.

Questions: official NEET papers set by NTA. Solutions: BrainIt. BrainIt is independent and not affiliated with NTA. Online, with every chapter: brainit.pro/neet/chemistry/haloalkanes-and-haloarenes/pyq/

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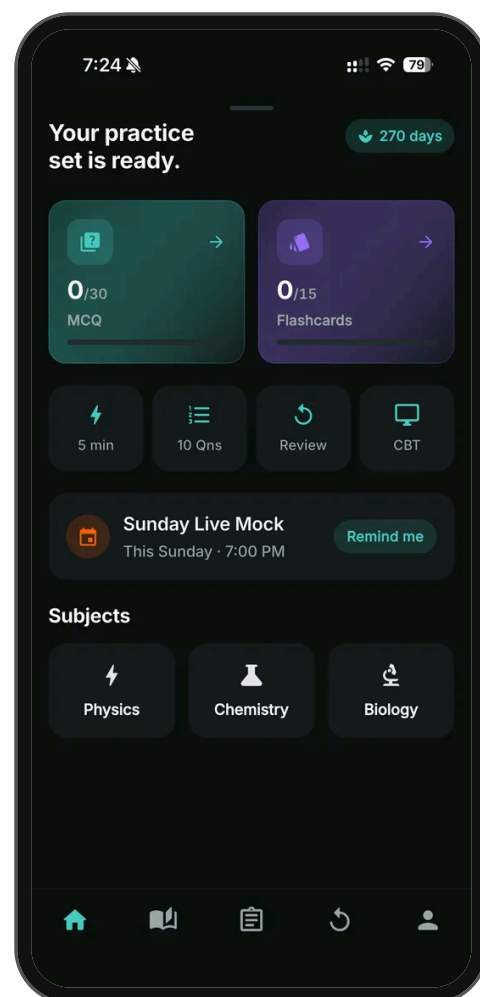
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