

p-Block Elements (Groups 13-14)

NEET previous year questions · Chemistry

4 questions from the official papers: NEET 2026 (1), Re-NEET 2026 (2), 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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1. NEET 2026 · Q81

Identify the incorrect statement from the following:

- (1) Carbon has the ability to form $p\pi-p\pi$ multiple bond with itself.
- (2) ECl_3 (E = B and Al) is a monomer when E = B and a dimer when E = Al.
- (3) The order of catenation property of Group 14 elements is $C \gg Si > Ge \approx Sn$.
- (4) Oxygen exhibits only -2 oxidation state.

Answer (4)

Sol. Oxygen shows several oxidation states besides -2: it is -1 in peroxides (H_2O_2), $-\frac{1}{2}$ in superoxides, and positive (+2, +1) in fluorides such as OF_2 and O_2F_2 , so statement (4) is incorrect and is the required answer. The other statements are correct: carbon readily forms $p\pi-p\pi$ bonds ($C=C$, $C\equiv C$); BCl_3 is monomeric (B uses back-bonding) while $AlCl_3$ dimerises to Al_2Cl_6 ; and catenation decreases down Group 14 as $C \gg Si > Ge \approx Sn$.

2. Re-NEET 2026 · Q49

In potash alum, the ratio of K^+ and SO_4^{2-} ions is

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

Answer (1)

Sol. Potash alum is the double salt $K_2SO_4 \cdot Al_2(SO_4)_3 \cdot 24H_2O$, most compactly written as $KAl(SO_4)_2 \cdot 12H_2O$. Each formula unit supplies one K^+ balanced against two sulphate ions (together with one Al^{3+}), so the ratio is 1 : 2. NCERT Class 11, The p-Block Elements (compounds of aluminium).

3. Re-NEET 2026 · Q73

The correct statement is

- (1) Boron has a maximum covalency of four.
- (2) Beryllium has three valence orbitals.
- (3) Magnesium has a maximum covalency of four.
- (4) Aluminium has five valence orbitals.

Answer (1)

Sol. Boron sits in the second period, where only one 2s and three 2p orbitals are available for bonding - four orbitals in all - and there are no 2d orbitals to expand into. Its covalency therefore cannot exceed four, as in BF_4^- and $[BH_4]^-$. NCERT Class 11, The p-Block Elements (anomalous properties of boron).

4. NEET 2020 · Q106

Identify the correct statements from the following :

Statement I: $CO_2(g)$ is used as refrigerant for ice-cream and frozen food.

Statement II: The structure of C_{60} contains twelve six carbon rings and twenty five carbon rings.

Statement III: ZSM-5, a type of zeolite, is used to convert alcohols into gasoline.

Statement IV: CO is colorless and odourless gas.

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

Answer (3)

Sol. CO_2 gas is not the refrigerant used here; solid CO_2 (dry ice) is. C_{60} contains twelve five-membered and twenty six-membered rings, so (Statement II) is false. ZSM-5 converts alcohols to gasoline and CO is colourless and odourless, so only (Statement III) and (Statement IV) are correct. Chapter: p-Block Elements (Groups 13-14).

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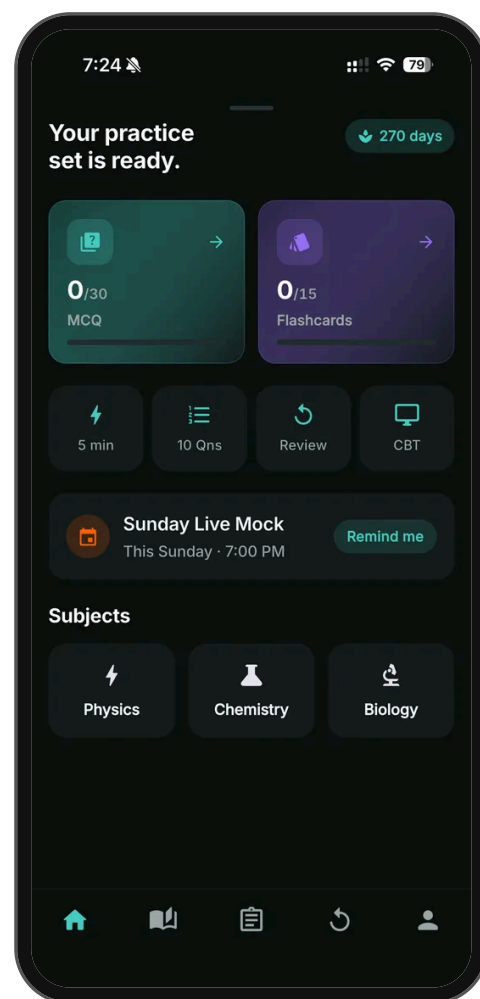
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