

JEE MAIN P-BLOCK ELEMENTS (GROUP 13 & 14) — GROUP 14 ELEMENTS (CARBON FAMILY) — PYQS

Max. Marks: 32

Questions: 8

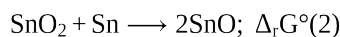
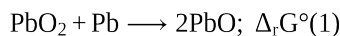
Section A (MCQ) — 8 questions

Q.1 Choose the **INCORRECT** statement

[JEE Main 2026 (Online) 24th January Evening Shift]

- (1) Carbon exhibits negative oxidation states along with +4 and +2.
- (2) Carbon cannot exceed its covalency more than four.
- (3) Among the isotopes of carbon, ^{13}C is a radioactive isotope.
- (4) CO_2 is the most acidic oxide among the dioxides of group 14 elements.

Scan or tap for the full solution


Q.2 It is noticed that Pb^{2+} is more stable than Pb^{4+} but Sn^{2+} is less stable than Sn^{4+} . Observe the following reactions.


Identify the correct set from the following

[JEE Main 2026 (Online) 23rd January Evening Shift]

- (1) $\Delta_r G^\circ(1) > 0$; $\Delta_r G^\circ(2) < 0$
- (2) $\Delta_r G^\circ(1) < 0$; $\Delta_r G^\circ(2) > 0$
- (3) $\Delta_r G^\circ(1) < 0$; $\Delta_r G^\circ(2) < 0$
- (4) $\Delta_r G^\circ(1) > 0$; $\Delta_r G^\circ(2) > 0$

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Q.3 Given below are two statements :

Statement-I: The number of pairs among $[\text{SiO}_2, \text{CO}_2]$, $[\text{SnO}, \text{SnO}_2]$, $[\text{PbO}, \text{PbO}_2]$ and $[\text{GeO}, \text{GeO}_2]$, which contain oxides that are both amphoteric is 2.

Statement-II: BF_3 is an electron deficient molecule, can act as a Lewis acid, forms adduct with NH_3 and has a trigonal planar geometry.

In the light of the above statements, choose the correct answer from the options given below :

[JEE Main 2026 (Online) 21st January Morning Shift]

- (1) Both Statement-I and Statement-II are false
- (2) Statement-I is false but Statement-II is true
- (3) Both Statement-I and Statement-II are true
- (4) Statement-I is true but Statement-II is false

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Q.4 The group 14 elements A and B have the first ionisation enthalpy values of 708 and 715 kJ mol^{-1} respectively. The above values are lowest among their group members. The nature of their ions A^{2+} and B^{4+} respectively is

[JEE Main 2025 (Online) 7th April Morning Shift]

- (1) both reducing
- (2) oxidising and reducing
- (3) both oxidising
- (4) reducing and oxidising

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Q.5 The standard reduction potential values of some of the p-block ions are given below. Predict the one with the strongest oxidising capacity.

[JEE Main 2025 (Online) 29th January Morning Shift]

- (1) $E^\circ_{\text{Sn}^{4+}/\text{Sn}^{2+}} = +0.15 \text{ V}$
- (2) $E^\circ_{\text{Al}^{3+}/\text{Al}} = -1.66 \text{ V}$
- (3) $E^\circ_{\text{Pb}^{4+}/\text{Pb}^{2+}} = +1.67 \text{ V}$
- (4) $E^\circ_{\text{Tl}^{3+}/\text{Tl}} = +1.26 \text{ V}$

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Q.6 Consider the following elements In, Tl, Al, Pb, Sn and Ge. The most stable oxidation states of elements with highest and lowest first ionisation enthalpies, respectively, are

[JEE Main 2025 (Online) 28th January Morning Shift]

- (1) +4 and +1
- (2) +4 and +3
- (3) +1 and +4
- (4) +2 and +3

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Q.7 Given below are two statements :

Statement-I: The first ionization energy of Pb is greater than that of Sn.

Statement-II: The first ionization energy of Ge is greater than that of Si.

In the light of the above statements, choose the correct answer from the options given below :

[JEE Main 2025 (Online) 24th January Evening Shift]

- (1) Statement-I is false but Statement-II is true
- (2) Both Statement-I and Statement-II are false
- (3) Both Statement-I and Statement-II are true
- (4) Statement-I is true but Statement-II is false

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Q.8 Given below are the atomic numbers of some group 14 elements. The atomic number of the element with lowest melting point is :

[JEE Main 2025 (Online) 23rd January Evening Shift]

- (1) 14 (2) 50 (3) 6 (4) 82

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ANSWER KEY

Ques.	1	2	3	4	5	6	7	8			
Ans.	3	2	3	4	3	2	4	2			