

CHEMISTRY · JEE MAIN

p-Block Elements — Part II (Group 15-18)

Chapter-wise previous year questions, with answer key

68

PYQS

2020–2025

PAPERS

4

TOPICS

Group 17: Halogens

Group 15: Nitrogen Family

Group 16: Oxygen Family

Group 18: Noble Gases

- 1 Attempt each question on paper first — they're grouped by topic, newest papers first.
- 2 Check yourself against the answer key at the end.
- 3 Got one wrong? Tap “Step-by-step solution” under it for the full working.

Stuck on a question?

Every question has a free step-by-step solution on PrepWiser — tap “Step-by-step solution” under it.

Practise this chapter online with instant answer checking: prepwisser.in/learn · No signup needed to browse

Group 17: Halogens · 16 PYQs

Q1 JEE Main 2025 · 2 Apr · Shift 1

The property/properties that show irregularity in first four elements of group-17 is/are

- (A) Covalent radius
- (B) Electron affinity
- (C) Ionic radius
- (D) First ionization energy

Choose the correct answer from the options given below :

- (A) A, B, C and D
- (B) A and C only
- (C) B only
- (D) B and D only

[Step-by-step solution ► prepwiser.in/questions/kLNOLDeEbM](https://www.prepwiser.in/questions/kLNOLDeEbM)

Q2 JEE Main 2024 · 9 Apr · Shift 1

The F^- ions make the enamel on teeth much harder by converting hydroxyapatite (the enamel on the surface of teeth) into much harder fluoroapatite having the formula.

- (A) $[3 (Ca_3 (PO_4)_2) \cdot CaF_2]$
- (B) $[3 (Ca_3 (PO_4)_2) \cdot Ca(OH)_2]$
- (C) $[3 (Ca_3 (PO_4)_3) \cdot CaF_2]$
- (D) $[3 (Ca_2 (PO_4)_2) \cdot Ca(OH)_2]$

[Step-by-step solution ► prepwiser.in/questions/hIjfNp9Cua](https://www.prepwiser.in/questions/hIjfNp9Cua)

Q3 JEE Main 2024 · 8 Apr · Shift 1

Among the following halogens

F_2 , Cl_2 , Br_2 and I_2

Which can undergo disproportionation reactions?

- (A) F_2 and Cl_2
- (B) Cl_2 , Br_2 and I_2
- (C) Only I_2
- (D) F_2 , Cl_2 and Br_2

[Step-by-step solution ► prepwiser.in/questions/pNHCJt6Tch](https://www.prepwiser.in/questions/pNHCJt6Tch)

Q4 JEE Main 2023 · 13 Apr · Shift 2

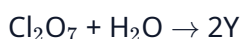
The correct group of halide ions which can be oxidised by oxygen in acidic medium is :

- (A) Br^- only
- (B) Cl^- , Br^- and I^- only
- (C) Br^- and I^- only
- (D) I^- only

[Step-by-step solution ► prepwisser.in/questions/LwsDjmtgdm](https://www.prepwisser.in/questions/LwsDjmtgdm)

Q5 JEE Main 2023 · 10 Apr · Shift 1

In the following reactions, the total number of oxygen atoms in X and Y is _____.

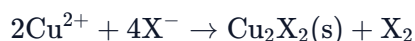


Numerical answer — enter the value.

[Step-by-step solution ► prepwisser.in/questions/LW3-MTIis8](https://www.prepwisser.in/questions/LW3-MTIis8)

Q6 JEE Main 2023 · 8 Apr · Shift 1

Which halogen is known to cause the reaction given below :



- | | |
|------------------|-------------------|
| (A) All halogens | (B) Only Iodine |
| (C) Only Bromine | (D) Only Chlorine |

[Step-by-step solution ► prepwisser.in/questions/B_BWYPCFLK](https://www.prepwisser.in/questions/B_BWYPCFLK)

Q7 JEE Main 2023 · 1 Feb · Shift 1

Given below are two statements:

Statement I : Chlorine can easily combine with oxygen to form oxides; and the product has a tendency to explode.

Statement II : Chemical reactivity of an element can be determined by its reaction with oxygen and halogens.

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

- (A) Statement I is true but Statement II is false
- (B) Both the Statements I and II are false
- (C) Statement I is false but Statement II is true
- (D) Both the Statements I and II are true

[Step-by-step solution ► prepwisser.in/questions/gFueM-sWkq](https://www.prepwisser.in/questions/gFueM-sWkq)

Q8 JEE Main 2022 · 28 Jul · Shift 2

Concentrated HNO_3 reacts with Iodine to give :

- (A) HI , NO_2 and H_2O
- (B) HIO_2 , N_2O and H_2O
- (C) HIO_3 , NO_2 and H_2O
- (D) HIO_4 , NO_2 and H_2O

[Step-by-step solution ► prepwisser.in/questions/197YhGPv7p](https://www.prepwisser.in/questions/197YhGPv7p)

Q9 JEE Main 2022 · 25 Jul · Shift 1

The interhalogen compound formed from the reaction of bromine with excess of fluorine is a :

- (A) hypohalite (B) halate
(C) perhalate (D) halite

[Step-by-step solution ► prepwiser.in/questions/b9z6ScHxvM](https://www.prepwiser.in/questions/b9z6ScHxvM)

Q10 JEE Main 2022 · 27 Jun · Shift 2

Given below are two statements : one is labelled as Assertion A and the other is labelled as Reason R.

Assertion A : Fluorine forms one oxoacid.

Reason R : Fluorine has smallest size amongst all halogens and is highly electronegative.

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

- (A) Both A and R are correct and R is the correct explanation of A.
(B) Both A and R are correct but R is NOT the correct explanation of A.
(C) A is correct but R is not correct.
(D) A is not correct but R is correct.

[Step-by-step solution ► prepwiser.in/questions/91BJZUL_kV](https://www.prepwiser.in/questions/91BJZUL_kV)

Q11 JEE Main 2021 · 31 Aug · Shift 1

The number of halogen/(s) forming halic (V) acid is _____.

Numerical answer — enter the value.

[Step-by-step solution ► prepwiser.in/questions/hsDW4hhPP4](https://www.prepwiser.in/questions/hsDW4hhPP4)

Q12 JEE Main 2021 · 31 Aug · Shift 2

Which one of the following correctly represents the order of stability of oxides, X_2O ; (X = halogen)?

- (A) $Br > Cl > I$ (B) $Br > I > Cl$
(C) $Cl > I > Br$ (D) $I > Cl > Br$

[Step-by-step solution ► prepwiser.in/questions/WEO_6aUk-e](https://www.prepwiser.in/questions/WEO_6aUk-e)

Q13 JEE Main 2021 · 25 Feb · Shift 2

The correct order of bond dissociation enthalpy of halogens is :

- (A) $F_2 > Cl_2 > Br_2 > I_2$
(B) $Cl_2 > Br_2 > F_2 > I_2$
(C) $I_2 > Br_2 > Cl_2 > F_2$
(D) $Cl_2 > F_2 > Br_2 > I_2$

[Step-by-step solution ► prepwiser.in/questions/1Ig3hIs8Op](https://www.prepwiser.in/questions/1Ig3hIs8Op)

Q14 JEE Main 2020 · 3 Sep · Shift 1

Aqua regia is used for dissolving noble metals (Au, Pt, etc.). The gas evolved in this process is :

(A) N_2O_3

(B) N_2

(C) N_2O_5

(D) NO

[Step-by-step solution ► prepwisser.in/questions/YFb_tHVbmt](https://www.prepwisser.in/questions/YFb_tHVbmt)

Q15 JEE Main 2020 · 7 Jan · Shift 1

Chlorine reacts with hot and concentrated NaOH and produces compounds (X) and (Y). Compound (X) gives white precipitate with silver nitrate solution. The average bond order between Cl and O atoms in (Y) is.

Numerical answer — enter the value.

[Step-by-step solution ► prepwisser.in/questions/3dtNxnGdL1](https://www.prepwisser.in/questions/3dtNxnGdL1)

Q16 JEE Main 2020 · 7 Jan · Shift 2

In the following reaction, products (A) and (B) respectively, are :

$\text{NaOH} + \text{Cl}_2 \rightarrow (\text{A}) + \text{side products}$
(hot and conc.)

$\text{Ca(OH)}_2 + \text{Cl}_2 \rightarrow (\text{B}) + \text{side products (dry)}$

(A) NaOCl and Ca(OCl)_2

(B) NaClO_3 and $\text{Ca(ClO}_3)_2$

(C) NaOCl and $\text{Ca(ClO}_3)_2$

(D) NaClO_3 and Ca(OCl)_2

[Step-by-step solution ► prepwisser.in/questions/6xM71dp1tA](https://www.prepwisser.in/questions/6xM71dp1tA)

Group 15: Nitrogen Family · 34 PYQs

Q17 JEE Main 2025 · 28 Jan · Shift 2

A group 15 element forms $d\pi - d\pi$ bond with transition metals. It also forms hydride, which is a strongest base among the hydrides of other group members that form $d\pi - d\pi$ bond.

The atomic number of the element is _____.

Numerical answer — enter the value.

[Step-by-step solution ► prepwisser.in/questions/n10tkw0ugI](https://www.prepwisser.in/questions/n10tkw0ugI)

Q18 JEE Main 2025 · 22 Jan · Shift 2

The maximum covalency of a non-metallic group 15 element 'E' with weakest E – E bond is :

(A) 5

(B) 3

(C) 4

(D) 6

[Step-by-step solution ► prepwisser.in/questions/k50Rf7fZJE](https://www.prepwisser.in/questions/k50Rf7fZJE)

Q19 JEE Main 2024 · 8 Apr · Shift 2

Identify the incorrect statements about group 15 elements :

- (A) Dinitrogen is a diatomic gas which acts like an inert gas at room temperature.
- (B) The common oxidation states of these elements are -3 , $+3$ and $+5$.
- (C) Nitrogen has unique ability to form $p\pi - p\pi$ multiple bonds.
- (D) The stability of $+5$ oxidation states increases down the group.
- (E) Nitrogen shows a maximum covalency of 6.

Choose the correct answer from the options given below :

- (A) (A), (C), (E) only
- (B) (D) and (E) only
- (C) (A), (B), (D) only
- (D) (B), (D), (E) only

[Step-by-step solution ► prepwisser.in/questions/WgUgpLB7k6](https://www.prepwisser.in/questions/WgUgpLB7k6)

Q20 JEE Main 2024 · 30 Jan · Shift 2

Choose the correct statements about the hydrides of group 15 elements.

- A. The stability of the hydrides decreases in the order $\text{NH}_3 > \text{PH}_3 > \text{AsH}_3 > \text{SbH}_3 > \text{BiH}_3$.
- B. The reducing ability of the hydride increases in the order $\text{NH}_3 < \text{PH}_3 < \text{AsH}_3 < \text{SbH}_3 < \text{BiH}_3$.
- C. Among the hydrides, NH_3 is strong reducing agent while BiH_3 is mild reducing agent.
- D. The basicity of the hydrides increases in the order $\text{NH}_3 < \text{PH}_3 < \text{AsH}_3 < \text{SbH}_3 < \text{BiH}_3$.

Choose the most appropriate from the options given below :

- (A) C and D only
- (B) A and D only
- (C) A and B only
- (D) B and C only

[Step-by-step solution ► prepwisser.in/questions/B_WMH69LPh](https://www.prepwisser.in/questions/B_WMH69LPh)

Q21 JEE Main 2023 · 12 Apr · Shift 1

Given below are two statements :

Statement I : SbCl_5 is more covalent than SbCl_3

Statement II: The higher oxides of halogens also tend to be more stable than the lower ones.

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

- (A) Both statement I and Statement II are correct
- (B) Both Statement I and Statement II are incorrect
- (C) Statement I is correct but Statement II is incorrect
- (D) Statement I is incorrect but Statement II is correct

[Step-by-step solution ► prepwisser.in/questions/ECwcIU29We](https://www.prepwisser.in/questions/ECwcIU29We)

Q22 JEE Main 2023 · 11 Apr · Shift 2

One mole of P_4 reacts with 8 moles of SOCl_2 to give 4 moles of A, x mole of SO_2 and 2 moles of B. A, B and x respectively are :

- (A) POCl_3 , S_2Cl_2 and 4
- (B) PCl_3 , S_2Cl_2 and 4
- (C) POCl_3 , S_2Cl_2 and 2
- (D) PCl_3 , S_2Cl_2 and 2

[Step-by-step solution ► prepwisser.in/questions/4tIMY2anv3](https://www.prepwisser.in/questions/4tIMY2anv3)

Q23 JEE Main 2023 · 11 Apr · Shift 1

Given below are two statements:

Statement-I : Methane and steam passed over a heated Ni catalyst produces hydrogen gas.

Statement-II : Sodium nitrite reacts with NH_4Cl to give H_2O , N_2 and NaCl .

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

- (A) Statement I is correct but Statement II is incorrect
- (B) Both the statements I and II are incorrect
- (C) Both the statements I and II are correct
- (D) Statement I is incorrect but Statement II is correct

[Step-by-step solution ► prepwiser.in/questions/H03t4Qt3B7](https://www.prepwiser.in/questions/H03t4Qt3B7)

Q24 JEE Main 2023 · 29 Jan · Shift 2

Total number of acidic oxides among

N_2O_3 , NO_2 , N_2O , Cl_2O_7 , SO_2 , CO , CaO , Na_2O and NO is _____.

Numerical answer — enter the value.

[Step-by-step solution ► prepwiser.in/questions/DSRiSNPAqq](https://www.prepwiser.in/questions/DSRiSNPAqq)

Q25 JEE Main 2023 · 29 Jan · Shift 1

"A" obtained by Ostwald's method involving air oxidation of NH_3 , upon further air oxidation produces "B", "B" on hydration forms an oxoacid of Nitrogen along with evolution of "A". The oxoacid also produces "A" and gives positive brown ring test.

Identify A and B, respectively :

- | | |
|--|--|
| (A) N_2O_3 , NO_2 | (B) NO_2 , N_2O_5 |
| (C) NO_2 , N_2O_4 | (D) NO , NO_2 |

[Step-by-step solution ► prepwiser.in/questions/J447CjBRVW](https://www.prepwiser.in/questions/J447CjBRVW)

Q26 JEE Main 2023 · 25 Jan · Shift 1

Reaction of thionyl chloride with white phosphorus forms a compound [A], which on hydrolysis gives [B], a dibasic acid. [A] and [B] are respectively :

- | | |
|--|---|
| (A) P_4O_6 and H_3PO_3 | (B) POCl_3 and H_3PO_4 |
| (C) PCl_5 and H_3PO_4 | (D) PCl_3 and H_3PO_3 |

[Step-by-step solution ► prepwiser.in/questions/d7J_cLOgbV](https://www.prepwiser.in/questions/d7J_cLOgbV)

Q27 JEE Main 2022 · 29 Jul · Shift 2

Dinitrogen is a robust compound, but reacts at high altitudes to form oxides. The oxide of nitrogen that can damage plant leaves and retard photosynthesis is :

- | | |
|-------------------|---------------------|
| (A) NO | (B) NO_3^- |
| (C) NO_2 | (D) NO_2^- |

[Step-by-step solution ► prepwiser.in/questions/iB04OQNX13](https://www.prepwiser.in/questions/iB04OQNX13)

Q28 JEE Main 2022 · 28 Jul · Shift 2

White phosphorus reacts with thionyl chloride to give :

- (A) PCl_5 , SO_2 and S_2Cl_2
- (B) PCl_3 , SO_2 and S_2Cl_2
- (C) PCl_3 , SO_2 and Cl_2
- (D) PCl_5 , SO_2 and Cl_2

Step-by-step solution ► [prepwisser.in/questions/xlDuxOaZt7](https://www.prepwisser.in/questions/xlDuxOaZt7)

Q29 JEE Main 2022 · 28 Jul · Shift 2

Dinitrogen and dioxygen, the main constituents of air do not react with each other in atmosphere to form oxides of nitrogen because :

- (A) N_2 is unreactive in the condition of atmosphere.
- (B) Oxides of nitrogen are unstable.
- (C) Reaction between them can occur in the presence of a catalyst.
- (D) The reaction is endothermic and require very high temperature.

Step-by-step solution ► [prepwisser.in/questions/l1fbRAb3Uu](https://www.prepwisser.in/questions/l1fbRAb3Uu)

Q30 JEE Main 2022 · 27 Jul · Shift 1

Which oxoacid of phosphorous has the highest number of oxygen atoms present in its chemical formula?

- | | |
|-------------------------|-------------------------|
| (A) Pyrophosphorus acid | (B) Hypophosphoric acid |
| (C) Phosphoric acid | (D) Pyrophosphoric acid |

Step-by-step solution ► [prepwisser.in/questions/ZY082Z57L-](https://www.prepwisser.in/questions/ZY082Z57L-)

Q31 JEE Main 2022 · 25 Jul · Shift 2

The total number of acidic oxides from the following list is

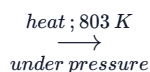
NO , N_2O , B_2O_3 , N_2O_5 , CO , SO_3 , P_4O_{10}

- | | |
|-------|-------|
| (A) 3 | (B) 4 |
| (C) 5 | (D) 6 |

Step-by-step solution ► [prepwisser.in/questions/8r7xblWO7Y](https://www.prepwisser.in/questions/8r7xblWO7Y)

Q32 JEE Main 2022 · 30 Jun · Shift 1

A $\xrightarrow{573\text{ K}}$ Red phosphorus



B

Red phosphorus is obtained by heating "A" at 573 K, and can be converted to "B" by heating at 803 K under pressure.

A and B, respectively, are

- (A) β -black phosphorus and white phosphorus.
- (B) white phosphorus and β -black phosphorus.
- (C) α -black phosphorus and white phosphorus.
- (D) white phosphorus and α -black phosphorus.

[Step-by-step solution ► prepwisar.in/questions/M9c1IK5ugL](https://www.prepwisar.in/questions/M9c1IK5ugL)

Q33 JEE Main 2022 · 29 Jun · Shift 1

The oxoacid of phosphorus that is easily obtained from a reaction of alkali and white phosphorus and has two P-H bonds, is :

- (A) Phosphonic acid
- (B) Phosphinic acid
- (C) Pyrophosphorus acid
- (D) Hypophosphoric acid

[Step-by-step solution ► prepwisar.in/questions/v_MJG_GWW9](https://www.prepwisar.in/questions/v_MJG_GWW9)

Q34 JEE Main 2022 · 28 Jun · Shift 1

Given below are two statements :

Statement I : The pentavalent oxide of group-15 element, E_2O_5 , is less acidic than trivalent oxide, E_2O_3 , of the same element.

Statement II : The acidic character of trivalent oxide of group 15 elements, E_2O_3 , decreases down the group.

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

- (A) Both Statement I and Statement II are true.
- (B) Both Statement I and Statement II are false.
- (C) Statement I is true, but Statement II is false.
- (D) Statement I is false, but Statement II is true.

[Step-by-step solution ► prepwisar.in/questions/6FZg_l9DxZ](https://www.prepwisar.in/questions/6FZg_l9DxZ)

Q35 JEE Main 2022 · 28 Jun · Shift 1

Nitrogen gas is obtained by thermal decomposition of :

- (A) $Ba(NO_3)_2$
- (B) $Ba(N_3)_2$
- (C) $NaNO_2$
- (D) $NaNO_3$

[Step-by-step solution ► prepwisar.in/questions/8AByaXvgQa](https://www.prepwisar.in/questions/8AByaXvgQa)

Q36 JEE Main 2022 · 27 Jun · Shift 2

The gas produced by treating an aqueous solution of ammonium chloride with sodium nitrite is :

- (A) NH_3
- (B) N_2
- (C) N_2O
- (D) Cl_2

[Step-by-step solution ► prepwiser.in/questions/r8nqZQp7r](https://www.prepwiser.in/questions/r8nqZQp7r)

Q37 JEE Main 2022 · 27 Jun · Shift 1

Heating white phosphorus with conc. NaOH solution gives mainly :

- (A) Na_3P and H_2O
- (B) H_3PO and NaH
- (C) $\text{P}(\text{OH})_3$ and NaH_2PO_4
- (D) PH_3 and NaH_2PO_2

[Step-by-step solution ► prepwiser.in/questions/rVEU07TqJK](https://www.prepwiser.in/questions/rVEU07TqJK)

Q38 JEE Main 2022 · 26 Jun · Shift 1

Consider the following reaction :



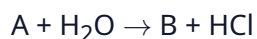
If B is an oxoacid of phosphorus with no P-H bond, then A is :

- (A) White P_4
- (B) Red P_4
- (C) P_2O_3
- (D) H_3PO_3

[Step-by-step solution ► prepwiser.in/questions/XZajGQY-2X](https://www.prepwiser.in/questions/XZajGQY-2X)

Q39 JEE Main 2022 · 25 Jun · Shift 2

Consider the following reactions:



The number of ionisable protons present in the product B is _____.

Numerical answer — enter the value.

[Step-by-step solution ► prepwiser.in/questions/phGMPfBcog](https://www.prepwiser.in/questions/phGMPfBcog)

Q40 JEE Main 2022 · 24 Jun · Shift 1

Given below are the oxides:



Number of amphoteric oxides is :

- | | |
|-------|-------|
| (A) 0 | (B) 1 |
| (C) 2 | (D) 3 |

[Step-by-step solution ► prepwiser.in/questions/007_FV4HNA](https://www.prepwiser.in/questions/007_FV4HNA)

Q41 JEE Main 2022 · 24 Jun · Shift 1

The most stable trihalide of nitrogen is :

- (A) NF_3
- (B) NCl_3
- (C) NBr_3
- (D) NI_3

Step-by-step solution ► [prepwiser.in/questions/w5APFHT72i](https://www.prepwiser.in/questions/w5APFHT72i)

Q42 JEE Main 2022 · 24 Jun · Shift 2

PCl_5 is well known, but NCl_5 is not. because,

- (A) nitrogen is less reactive than phosphorus.
- (B) nitrogen doesn't have d-orbitals in its valence shell.
- (C) catenation tendency is weaker in nitrogen than phosphorus.
- (D) size of phosphorus is larger than nitrogen.

Step-by-step solution ► [prepwiser.in/questions/ZRb61ikfsS](https://www.prepwiser.in/questions/ZRb61ikfsS)

Q43 JEE Main 2021 · 27 Aug · Shift 2

Which one of the following is formed (mainly) when red phosphorus is heated in a sealed tube at 803 K?

- | | |
|-------------------------------|--------------------------------|
| (A) White phosphorus | (B) Yellow phosphorus |
| (C) β -Black phosphorus | (D) α -Black phosphorus |

Step-by-step solution ► [prepwiser.in/questions/rcLtsf4qIX](https://www.prepwiser.in/questions/rcLtsf4qIX)

Q44 JEE Main 2021 · 22 Jul · Shift 2

Which one of the following group-15 hydride is the strongest reducing agent?

- (A) AsH_3
- (B) BiH_3
- (C) PH_3
- (D) SbH_3

Step-by-step solution ► [prepwiser.in/questions/i0gYZS7R-C](https://www.prepwiser.in/questions/i0gYZS7R-C)

Q45 JEE Main 2021 · 17 Mar · Shift 2

The set that represents the pair of neutral oxides of nitrogen is :

- (A) NO and N_2O
- (B) N_2O and NO_2
- (C) NO and NO_2
- (D) N_2O and N_2O_3

Step-by-step solution ► [prepwiser.in/questions/UK0xsaISjp](https://www.prepwiser.in/questions/UK0xsaISjp)

Match List - I with List - II :

List - I	List - II
Name of oxo acid	Oxidation state of 'P'
(a) Hypophosphorous acid	(i) +5
(b) Orthophosphoric acid	(ii) +4
(c) Hypophosphoric acid	(iii) +3
(d) Orthophosphorous acid	(iv) +2
	(v) +1

Choose the correct answer from the options given below :

(A) (a) - (iv), (b) - (v), (c) - (ii), (d) - (iii)

(B) (a) - (iv), (b) - (i), (c) - (ii), (d) - (iii)

(C) (a) - (v), (b) - (i), (c) - (ii), (d) - (iii)

(D) (a) - (v), (b) - (iv), (c) - (ii), (d) - (iii)

Step-by-step solution ► [prepwiser.in/questions/5fw9MKyVYn](https://www.prepwiser.in/questions/5fw9MKyVYn)

A group of 15 element, which is a metal and forms a hydride with strongest reducing power among group 15 hydrides. The element is :

(A) As

(B) Sb

(C) Bi

(D) P

Step-by-step solution ► [prepwiser.in/questions/ebvUD16z37](https://www.prepwiser.in/questions/ebvUD16z37)

The correct statement with respect to dinitrogen is :

(A) N_2 is paramagnetic in nature

(B) it can be used as an inert diluent for reactive chemicals

(C) it can combine with dioxygen at $25^\circ C$

(D) liquid dinitrogen is not used in cryosurgery

Step-by-step solution ► [prepwiser.in/questions/xlfj7hHWsG](https://www.prepwiser.in/questions/xlfj7hHWsG)

The reaction of NO with N_2O_4 at 250 K gives :

(A) N_2O_3

(B) N_2O_5

(C) N_2O

(D) NO_2

Step-by-step solution ► [prepwiser.in/questions/Gx83ojvMRr](https://www.prepwiser.in/questions/Gx83ojvMRr)

Q50 JEE Main 2020 · 5 Sep · Shift 2

Reaction of ammonia with excess Cl_2 gives :

- (A) NH_4Cl and N_2
- (B) NH_4Cl and HCl
- (C) NCl_3 and HCl
- (D) NCl_3 and NH_4Cl

[Step-by-step solution ► prepwiser.in/questions/Jc-gg1rzhG](https://www.prepwiser.in/questions/Jc-gg1rzhG)

Group 16: Oxygen Family · 13 PYQs

Q51 JEE Main 2025 · 8 Apr · Shift 2

Given below are two statements:

Statement I: H_2Se is more acidic than H_2Te

Statement II: H_2Se has higher bond enthalpy for dissociation than H_2Te

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

- (A) Both Statement I and Statement II are true
- (B) Statement I is true but Statement II is false
- (C) Both Statement I and Statement II are false
- (D) Statement I is false but Statement II is true

[Step-by-step solution ► prepwiser.in/questions/Tfib_7hrRg](https://www.prepwiser.in/questions/Tfib_7hrRg)

Q52 JEE Main 2025 · 2 Apr · Shift 2

The nature of oxide (TeO_2) and hydride (TeH_2) formed by Te , respectively are :

- | | |
|--------------------------|-------------------------|
| (A) Reducing and basic | (B) Reducing and acidic |
| (C) Oxidising and acidic | (D) Oxidising and basic |

[Step-by-step solution ► prepwiser.in/questions/HnZnmZG_jF](https://www.prepwiser.in/questions/HnZnmZG_jF)

Q53 JEE Main 2025 · 24 Jan · Shift 1

The large difference between the melting and boiling points of oxygen and sulphur may be explained on the basis of

- | | |
|-----------------|----------------------------|
| (A) Atomicity | (B) Electron gain enthalpy |
| (C) Atomic size | (D) Electronegativity |

[Step-by-step solution ► prepwiser.in/questions/eC9a0dLzyC](https://www.prepwiser.in/questions/eC9a0dLzyC)

Q54 JEE Main 2024 · 9 Apr · Shift 2

Number of oxygen atoms present in chemical formula of fuming sulphuric acid is _____.

Numerical answer — enter the value.

[Step-by-step solution ► prepwiser.in/questions/iOhWLAN-7M](https://www.prepwiser.in/questions/iOhWLAN-7M)

Q55 JEE Main 2024 · 9 Apr · Shift 1

Given below are two statements : one is labelled as Assertion (A) and the other is labelled as Reason (R).

Assertion (A) : Both rhombic and monoclinic sulphur exist as S_8 while oxygen exists as O_2 .

Reason (R) : Oxygen forms $p\pi - p\pi$ multiple bonds with itself and other elements having small size and high electronegativity like C, N, which is not possible for sulphur.

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

(A) Both (A) and (R) are correct but (R) is not the correct explanation of (A)

(B) (A) is correct but (R) is not correct

(C) (A) is not correct but (R) is correct

(D) Both (A) and (R) are correct and (R) is the correct explanation of (A)

[Step-by-step solution ► prepwiser.in/questions/5wwkd4k1Gw](https://www.prepwiser.in/questions/5wwkd4k1Gw)

Q56 JEE Main 2024 · 30 Jan · Shift 2

Given below are two statements: One is labelled as Assertion A and the other is labelled as Reason R:

Assertion A: H_2Te is more acidic than H_2S .

Reason R: Bond dissociation enthalpy of H_2Te is lower than H_2S .

In the light of the above statements, choose the most appropriate from the options given below:

(A) Both A and R are true and R is the correct explanation of A.

(B) Both A and R are true but R is NOT the correct explanation of A.

(C) A is false but R is true.

(D) A is true but R is false.

[Step-by-step solution ► prepwiser.in/questions/s6aHBLHPCA](https://www.prepwiser.in/questions/s6aHBLHPCA)

Q57 JEE Main 2024 · 27 Jan · Shift 2

Given below are two statements :

Statement (I) : Oxygen being the first member of group 16 exhibits only -2 oxidation state.

Statement (II) : Down the group 16 stability of +4 oxidation state decreases and +6 oxidation state increases.

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

(A) Statement I is correct but Statement II is incorrect

(B) Both Statement I and Statement II are incorrect

(C) Statement I is incorrect but Statement II is correct

(D) Both Statement I and Statement II are correct

[Step-by-step solution ► prepwiser.in/questions/N291nLYYN6](https://www.prepwiser.in/questions/N291nLYYN6)

Q58 JEE Main 2023 · 30 Jan · Shift 2

Bond dissociation energy of "E-H" bond of the " H_2E " hydrides of group 16 elements (given below), follows order.

A. O

B. S

C. Se

D. Te

Choose the correct from the options given below:

(A) $A > B > C > D$

(B) $D > C > B > A$

(C) $B > A > C > D$

(D) $A > B > D > C$

[Step-by-step solution ► prepwisser.in/questions/miVwpNUgj2](https://www.prepwisser.in/questions/miVwpNUgj2)

Q59 JEE Main 2022 · 26 Jun · Shift 1

The correct order of melting points of hydrides of group 16 elements is :

(A) $H_2S < H_2Se < H_2Te < H_2O$

(B) $H_2O < H_2S < H_2Se < H_2Te$

(C) $H_2S < H_2Te < H_2Se < H_2O$

(D) $H_2Se < H_2S < H_2Te < H_2O$

[Step-by-step solution ► prepwisser.in/questions/ATh_qLGdue](https://www.prepwisser.in/questions/ATh_qLGdue)

Q60 JEE Main 2021 · 26 Aug · Shift 2

Chalcogen group elements are :

(A) Se, Tb and Pu.

(B) Se, Te and Po.

(C) S, Te and Pm.

(D) O, Ti and Po.

[Step-by-step solution ► prepwisser.in/questions/AR2LAPo39N](https://www.prepwisser.in/questions/AR2LAPo39N)

Q61 JEE Main 2021 · 26 Feb · Shift 2

Which pair of oxides is acidic in nature?

(A) CaO, SiO_2

(B) B_2O_3, CaO

(C) B_2O_3, SiO_2

(D) N_2O, BaO

[Step-by-step solution ► prepwisser.in/questions/3izBBaS77N](https://www.prepwisser.in/questions/3izBBaS77N)

Q62 JEE Main 2021 · 25 Feb · Shift 2

Given below are two statements :

Statement I : α and β forms of sulphur can change reversibly between themselves with slow heating or slow cooling.

Statement II : At room temperature the stable crystalline form of sulphur is monoclinic sulphur.

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

- (A) Statement I is true but Statement II is false.
- (B) Statement I is false but Statement II is true.
- (C) Both Statement I and Statement II are true.
- (D) Both Statement I and Statement II are false.

[Step-by-step solution ► prepwisser.in/questions/SSXbCmhRp7](https://www.prepwisser.in/questions/SSXbCmhRp7)

Q63 JEE Main 2021 · 24 Feb · Shift 2

Among the following allotropic forms of sulphur, the number of allotropic forms, which will show paramagnetism is _____.

- (A) α -sulphur
- (B) β -sulphur
- (C) S_2 -form

Numerical answer — enter the value.

[Step-by-step solution ► prepwisser.in/questions/e2RoDIBJ0I](https://www.prepwisser.in/questions/e2RoDIBJ0I)

Group 18: Noble Gases · 5 PYQs

Q64 JEE Main 2024 · 31 Jan · Shift 1

Give below are two statements:

Statement - I: Noble gases have very high boiling points.

Statement - II: Noble gases are monoatomic gases. They are held together by strong dispersion forces. Because of this they are liquefied at very low temperature. Hence, they have very high boiling points.

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

- (A) Both Statement I and Statement II are false.
- (B) Statement I is true but Statement II is false.
- (C) Statement I is false but Statement II is true.
- (D) Both Statement I and Statement II are true.

[Step-by-step solution ► prepwisser.in/questions/PpcEHOUIb6](https://www.prepwisser.in/questions/PpcEHOUIb6)

Q65 JEE Main 2023 · 10 Apr · Shift 2

The difference in the oxidation state of Xe between the oxidised product of Xe formed on complete hydrolysis of XeF_4 is _____

Numerical answer — enter the value.

[Step-by-step solution ► prepwiser.in/questions/nLDz1Je-m6](https://www.prepwiser.in/questions/nLDz1Je-m6)

Q66 JEE Main 2023 · 8 Apr · Shift 1

XeF_4 reacts with SbF_5 to form



$m + n + y + z =$ _____

Numerical answer — enter the value.

[Step-by-step solution ► prepwiser.in/questions/SK-7hFrBe9](https://www.prepwiser.in/questions/SK-7hFrBe9)

Q67 JEE Main 2023 · 25 Jan · Shift 1

Inert gases have positive electron gain enthalpy. Its correct order is :

(A) $\text{He} < \text{Ne} < \text{Kr} < \text{Xe}$

(B) $\text{He} < \text{Xe} < \text{Kr} < \text{Ne}$

(C) $\text{Xe} < \text{Kr} < \text{Ne} < \text{He}$

(D) $\text{He} < \text{Kr} < \text{Xe} < \text{Ne}$

[Step-by-step solution ► prepwiser.in/questions/NfHpEiW7hB](https://www.prepwiser.in/questions/NfHpEiW7hB)

Q68 JEE Main 2021 · 18 Mar · Shift 2

A xenon compound 'A' upon partial hydrolysis gives XeO_2F_2 . The number of lone pair of electrons present in compound A is _____. (Round off to the Nearest Integer)

Numerical answer — enter the value.

[Step-by-step solution ► prepwiser.in/questions/VqaDVcxR0P](https://www.prepwiser.in/questions/VqaDVcxR0P)

Answer key — p-Block Elements — Part II (Group 15-18)

Numbers match the question numbers above. For full working, open the solution link under each question.

1	C	2	A	3	B	4	D	5	5	6	B	7	D	8	C
9	B	10	A	11	3	12	D	13	B	14	D	15	1	16	D
17	15	18	C	19	B	20	C	21	A	22	B	23	C	24	4
25	D	26	D	27	C	28	B	29	D	30	D	31	B	32	D
33	B	34	D	35	B	36	B	37	D	38	B	39	2	40	B
41	A	42	B	43	D	44	B	45	A	46	C	47	C	48	B
49	A	50	C	51	D	52	C	53	A	54	7	55	D	56	A
57	B	58	A	59	A	60	B	61	C	62	A	63	1	64	A
65	2	66	11	67	B	68	19								

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