

# PYQSide

## NEET P-BLOCK ELEMENTS (GROUP 15–18) — GROUP 15 ELEMENTS (NITROGEN FAMILY) — PYQS

Max. Marks: 64

Questions: 16

### Section A (MCQ)

**Q.1** Identify the incorrect statement from the following:

[NEET (UG) 2026]

- (1) Phosphorus, arsenic and antimony show catenation property.
- (2)  $P(C_2H_5)_3$  and  $As(C_6H_5)_3$  form  $d\pi-d\pi$  bond with transition metals.
- (3) Nitrogen can form  $d\pi-p\pi$  bond with oxygen.
- (4) Nitrogen can form  $p\pi-p\pi$  multiple bonds with itself.

Scan or tap for the full solution



**Q.2** Given below are two statements :

**Statement-I:** Like nitrogen that can form ammonia, arsenic can form arsine.

**Statement-II:** Antimony cannot form antimony pentoxide.

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

[NEET (UG) 2025]

- (1) Statement-I is correct but Statement-II is incorrect
- (2) Statement-I is incorrect but Statement-II is correct
- (3) Both Statement-I and Statement-II are correct
- (4) Both Statement-I and Statement-II are incorrect

Scan or tap for the full solution



**Q.3** Match List I with List II :

| List - I<br>(Atom/Molecule) |                   | List - II<br>(Property) |                                                      |
|-----------------------------|-------------------|-------------------------|------------------------------------------------------|
| A.                          | Nitrogen atom     | I.                      | Paramagnetic                                         |
| B.                          | Fluorine molecule | II.                     | Most reactive element in group 18                    |
| C.                          | Oxygen molecule   | III.                    | Element with highest ionisation enthalpy in group 15 |
| D.                          | Xenon atom        | IV.                     | Strongest oxidising agent                            |

Identify the correct answer from the options given below :

[RE-NEET (UG) 2024]

- (1) A-III, B-I, C-IV, D-II (2) A-I, B-IV, C-III, D-II
- (3) A-II, B-IV, C-I, D-III (4) A-III, B-IV, C-I, D-II

Scan or tap for the full solution



**Q.4** Identify the incorrect statement.

[RE-NEET (UG) 2024]

- (1)  $PEt_3$  and  $AsPh_3$  as ligands can form  $d\pi - d\pi$  bond with transition metals
- (2) The N – N single bond is as strong as the P – P single bond
- (3) Nitrogen has unique ability to form  $p\pi - p\pi$  multiple bonds with nitrogen, carbon and oxygen
- (4) Nitrogen cannot form  $d\pi - p\pi$  bond as other heavier elements of its group

Scan or tap for the full solution



**Q.5** Which of the following reactions is a part of the large scale industrial preparation of nitric acid?

[NEET (UG) 2022 (Phase 2)]

- (1)  $Cu(NO_3)_2 + 2NO_2 + 2H_2O \xrightarrow[500\text{ K, 9 bar}]{Pt} 4HNO_3 + Cu$
- (2)  $NaNO_3 + H_2SO_4 \xrightarrow[500\text{ K, 9 bar}]{Pt} NaHSO_4 + HNO_3$
- (3)  $4NH_3 + 5O_2 \text{ (from air)} \xrightarrow[500\text{ K, 9 bar}]{Pt} 4NO + 6H_2O$
- (4)  $4HPO_3 + 2N_2O_5 \xrightarrow[500\text{ K, 9 bar}]{Pt} 4HNO_3 + P_4O_{10}$

Scan or tap for the full solution



**Q.6** Urea reacts with water to form A which will decompose to form B. B when passed through  $Cu^{2+}(aq)$ , deep blue colour solution C is formed. What is the formula of C from the following?

[NEET (UG) 2020]

- (1)  $[Cu(NH_3)_4]^{2+}$
- (2)  $Cu(OH)_2$
- (3)  $CuCO_3 \cdot Cu(OH)_2$
- (4)  $CuSO_4$

Scan or tap for the full solution



**Q.7** Match the following :

Which of the following is the correct option?

[NEET (UG) 2019]

| List-I |                  | List-II |                              |
|--------|------------------|---------|------------------------------|
| a.     | Pure nitrogen    | i.      | Chlorine                     |
| b.     | Haber process    | ii.     | Sulphuric acid               |
| c.     | Contact process  | iii.    | Ammonia                      |
| d.     | Deacon's process | iv.     | Sodium azide or Barium azide |

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

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

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

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

Scan or tap for the full solution



**Q.8** Identify the incorrect statement related to  $\text{PCl}_5$  from the following : [NEET (UG) 2019]

- (1) Axial P–Cl bonds are longer than equatorial P–Cl bonds
- (2)  $\text{PCl}_5$  molecule is non-reactive
- (3) Three equatorial P–Cl bonds make an angle of  $120^\circ$  with each other
- (4) Two axial P–Cl bonds make an angle of  $180^\circ$  with each other

Scan or tap for the full solution



**Q.9** Which is the correct statement for the given acids?

[NEET 2016 (Phase 1)]

- (1) Phosphinic acid is a monoprotic acid while phosphonic acid is a diprotic acid.
- (2) Phosphinic acid is a diprotic acid while phosphonic acid is a monoprotic acid.
- (3) Both are diprotic acids.
- (4) Both are triprotic acids.

Scan or tap for the full solution



**Q.10** When copper is heated with conc.  $\text{HNO}_3$  it produces

[NEET 2016 (Phase 1)]

- (1)  $\text{Cu}(\text{NO}_3)_2$ , NO and  $\text{NO}_2$
- (2)  $\text{Cu}(\text{NO}_3)_2$  and  $\text{N}_2\text{O}$
- (3)  $\text{Cu}(\text{NO}_3)_2$  and  $\text{NO}_2$
- (4)  $\text{Cu}(\text{NO}_3)_2$  and NO

Scan or tap for the full solution



**Q.11** Strong reducing behavior of  $\text{H}_3\text{PO}_2$  is due to

[AIPMT 2015]

- (1) high electron gain enthalpy of phosphorus
- (2) high oxidation state of phosphorus
- (3) presence of two –OH groups and one P–H bond
- (4) presence of one –OH group and two P–H bonds.

Scan or tap for the full solution



**Q.12** Which of the following statements is not valid for oxoacids of phosphorus? [AIPMT 2012 (Prelims)]

- (1) Orthophosphoric acid is used in the manufacture of triple superphosphate.
- (2) Hypophosphorous acid is a diprotic acid.
- (3) All oxoacids contain tetrahedral four coordinated phosphorus.
- (4) All oxoacids contain at least one P=O unit and one P–OH group.

Scan or tap for the full solution



**Q.13** How many bridging oxygen atoms are present in  $\text{P}_4\text{O}_{10}$ ? [AIPMT 2010 (Mains)]

- (1) 6
- (2) 4
- (3) 2
- (4) 5

Scan or tap for the full solution



**Q.14** Oxidation states of P in  $\text{H}_4\text{P}_2\text{O}_5$ ,  $\text{H}_4\text{P}_2\text{O}_6$ ,  $\text{H}_4\text{P}_2\text{O}_7$  are respectively [AIPMT 2010 (Prelims)]

- (1) +3, +5, +4
- (2) +5, +3, +4
- (3) +5, +4, +3
- (4) +3, +4, +5

Scan or tap for the full solution



**Q.15** Zn gives  $\text{H}_2$  gas with  $\text{H}_2\text{SO}_4$  and HCl but not with  $\text{HNO}_3$  because [AIPMT 2002]

- (1) Zn acts as oxidising agent when it reacts with  $\text{HNO}_3$
- (2)  $\text{HNO}_3$  is weaker acid than  $\text{H}_2\text{SO}_4$  and HCl
- (3) In electrochemical series Zn is above hydrogen
- (4)  $\text{NO}_3^-$  is reduced in preference to hydronium ion.

Scan or tap for the full solution



**Q.16** Nitrogen forms  $\text{N}_2$ , but phosphorus does not form  $\text{P}_2$ , however, it exists as  $\text{P}_4$ , reason is [AIPMT 2001]

- (1) triple bond present between phosphorus atoms
- (2)  $p\pi - p\pi$  bonding is weak
- (3)  $p\pi - p\pi$  bonding is strong
- (4) multiple bonds form easily.

Scan or tap for the full solution



## ANSWER KEY

| Ques. | 1  | 2  | 3  | 4  | 5  | 6 | 7 | 8 | 9 | 10 | 11 |
|-------|----|----|----|----|----|---|---|---|---|----|----|
| Ans.  | 3  | 1  | 4  | 2  | 3  | 1 | 2 | 2 | 1 | 3  | 4  |
| Ques. | 12 | 13 | 14 | 15 | 16 |   |   |   |   |    |    |
| Ans.  | 2  | 1  | 4  | 4  | 2  |   |   |   |   |    |    |