

# PYQSide

## NEET P-BLOCK ELEMENTS (GROUP 15–18) — GROUP 16 ELEMENTS (OXYGEN FAMILY) — PYQS

Max. Marks: 72

Questions: 18

### Section A (MCQ)

**Q.1** Given below are two statements:

**Statement-I:** The boiling point of hydrides of Group 16 elements follow the order  $\text{H}_2\text{O} > \text{H}_2\text{Te} > \text{H}_2\text{Se} > \text{H}_2\text{S}$ .

**Statement-II:** On the basis of molecular mass,  $\text{H}_2\text{O}$  is expected to have lower boiling point than the other members of the group but due to the presence of extensive H-bonding in  $\text{H}_2\text{O}$ , it has higher boiling point.

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

[NEET (UG) 2024]

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

Scan or tap for the full solution



**Q.2** Among Group 16 elements, which one does NOT show -2 oxidation state?

[NEET (UG) 2024]

- (1) O      (2) Se      (3) Te      (4) Po

Scan or tap for the full solution



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

| List-I<br>(Oxoacids of Sulphur) |                        | List-II<br>(Bonds) |                                       |
|---------------------------------|------------------------|--------------------|---------------------------------------|
| A.                              | Peroxodisulphuric acid | I.                 | Two S–OH,<br>Four S=O,<br>One S–O–S   |
| B.                              | Sulphuric acid         | II.                | Two S–OH,<br>One S=O                  |
| C.                              | Pyrosulphuric acid     | III.               | Two S–OH,<br>Four S=O,<br>One S–O–O–S |
| D.                              | Sulphurous acid        | IV.                | Two S–OH,<br>Two S=O                  |

Choose the correct answer from the options given below:

[NEET (UG) 2023]

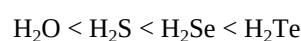
- (1) A-III, B-IV, C-I, D-II (2) A-I, B-III, C-IV, D-II
- (3) A-III, B-IV, C-II, D-I (4) A-I, B-III, C-II, D-IV

Scan or tap for the full solution



**Q.4** Given below are two statements

**Statement-I:** The boiling points of the following hydrides of group 16 elements increase in the order -



**Statement-II:** The boiling points of these hydrides increase with increase in molar mass.

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

[NEET (UG) 2022]

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

Scan or tap for the full solution



**Q.5** In which one of the following arrangements the given sequence is not strictly according to the properties indicated against it? [NEET (UG) 2021]

- (1)  $\text{CO}_2 < \text{SiO}_2 < \text{SnO}_2 < \text{PbO}_2$  : Increasing oxidizing order
- (2)  $\text{HF} < \text{HCl} < \text{HBr} < \text{HI}$  : Increasing acidic strength
- (3)  $\text{H}_2\text{O} < \text{H}_2\text{S} < \text{H}_2\text{Se} < \text{H}_2\text{Te}$  : Increasing  $\text{pK}_a$  values
- (4)  $\text{NH}_3 < \text{PH}_3 < \text{AsH}_3 < \text{SbH}_3$  : Increasing acidic character

Scan or tap for the full solution



**Q.6** Which of the following oxoacid of sulphur has –O–O– linkage? [NEET (UG) 2020]

- (1)  $\text{H}_2\text{SO}_4$ , sulphuric acid
- (2)  $\text{H}_2\text{S}_2\text{O}_8$ , peroxodisulphuric acid
- (3)  $\text{H}_2\text{S}_2\text{O}_7$ , pyrosulphuric acid
- (4)  $\text{H}_2\text{SO}_3$ , sulphurous acid

Scan or tap for the full solution



**Q.7** Which is the correct thermal stability order for  $H_2E$  ( $E = O, S, Se, Te$  and  $Po$ )? [NEET (UG) 2019]

- (1)  $H_2Po < H_2Te < H_2Se < H_2S < H_2O$   
 (2)  $H_2Se < H_2Te < H_2Po < H_2O < H_2S$   
 (3)  $H_2S < H_2O < H_2Se < H_2Te < H_2Po$   
 (4)  $H_2O < H_2S < H_2Se < H_2Te < H_2Po$

Scan or tap for the full solution



**Q.8** In which pair of ions both the species contain S–S bond? [NEET 2017]

- (1)  $S_4O_6^{2-}, S_2O_3^{2-}$  (2)  $S_2O_7^{2-}, S_2O_8^{2-}$   
 (3)  $S_4O_6^{2-}, S_2O_7^{2-}$  (4)  $S_2O_7^{2-}, S_2O_3^{2-}$

Scan or tap for the full solution



**Q.9** Name the gas that can readily decolourise acidified  $KMnO_4$  solution. [NEET 2017]

- (1)  $SO_2$  (2)  $NO_2$  (3)  $P_2O_5$  (4)  $CO_2$

Scan or tap for the full solution



**Q.10** Hot concentrated sulphuric acid is a moderately strong oxidizing agent. Which of the following reactions does not show oxidizing behaviour?

[NEET 2016 (Phase 2)]

- (1)  $Cu + 2H_2SO_4 \longrightarrow CuSO_4 + SO_2 + 2H_2O$   
 (2)  $3S + 2H_2SO_4 \longrightarrow 3SO_2 + 2H_2O$   
 (3)  $C + 2H_2SO_4 \longrightarrow CO_2 + 2SO_2 + 2H_2O$   
 (4)  $CaF_2 + H_2SO_4 \longrightarrow CaSO_4 + 2HF$

Scan or tap for the full solution



**Q.11** Which of the statements given below is incorrect?

[AIPMT 2015]

- (1)  $O_3$  molecule is bent.  
 (2) ONF is isoelectronic with  $O_2N^-$   
 (3)  $OF_2$  is an oxide of fluorine.  
 (4)  $Cl_2O_7$  is an anhydride of perchloric acid.

Scan or tap for the full solution



**Q.12** Nitrogen dioxide and sulphur dioxide have some properties in common. Which property is shown by one of these compounds, but not by the other?

[AIPMT 2015 (Cancelled)]

- (1) Is soluble in water.  
 (2) Is used as a food preservative.  
 (3) Forms 'acid-rain'.  
 (4) Is a reducing agent.

Scan or tap for the full solution



**Q.13** Acidity of diprotic acids in aqueous solutions increases in the order [AIPMT 2014]

- (1)  $H_2S < H_2Se < H_2Te$  (2)  $H_2Se < H_2S < H_2Te$   
 (3)  $H_2Te < H_2S < H_2Se$  (4)  $H_2Se < H_2Te < H_2S$

Scan or tap for the full solution



**Q.14** Roasting of sulphides gives the gas X as a byproduct. This is a colourless gas with choking smell of burnt sulphur and causes great damage to respiratory organs as a result of acid rain. Its aqueous solution is acidic, acts as a reducing agent and its acid has never been isolated. The gas X is

[NEET 2013]

- (1)  $CO_2$  (2)  $SO_3$  (3)  $H_2S$  (4)  $SO_2$

Scan or tap for the full solution



**Q.15** In which of the following arrangements the given sequence is not strictly according to the property indicated against it? [AIPMT 2012 (Mains)]

- (1)  $HF < HCl < HBr < HI$  : increasing acidic strength  
 (2)  $H_2O < H_2S < H_2Se < H_2Te$  : increasing  $pK_a$  values  
 (3)  $NH_3 < PH_3 < AsH_3 < SbH_3$  : increasing acidic character  
 (4)  $CO_2 < SiO_2 < SnO_2 < PbO_2$  : increasing oxidising power

Scan or tap for the full solution



**Q.16** Sulphur trioxide can be obtained by which of the following reactions? [AIPMT 2012 (Prelims)]

- (1)  $CaSO_4 + C \xrightarrow{\Delta}$  (2)  $Fe_2(SO_4)_3 \xrightarrow{\Delta}$   
 (3)  $S + H_2SO_4 \xrightarrow{\Delta}$  (4)  $H_2SO_4 + PCl_5 \xrightarrow{\Delta}$

Scan or tap for the full solution



**Q.17** Match **List-I** (substances) with **List-II** (processes) employed in the manufacture of the substances and select the correct option. [AIPMT 2010 (Mains)]

| List-I<br>(Substances) |                  | List-II<br>(Processes) |                    |
|------------------------|------------------|------------------------|--------------------|
| A.                     | Sulphuric acid   | i.                     | Haber's process    |
| B.                     | Steel            | ii.                    | Bessemer's process |
| C.                     | Sodium hydroxide | iii.                   | Leblanc process    |
| D.                     | Ammonia          | iv.                    | Contact process    |

- (1) (A)  $\rightarrow$  (i); (B)  $\rightarrow$  (iv); (C)  $\rightarrow$  (ii); (D)  $\rightarrow$  (iii)  
 (2) (A)  $\rightarrow$  (i); (B)  $\rightarrow$  (ii); (C)  $\rightarrow$  (iii); (D)  $\rightarrow$  (iv)  
 (3) (A)  $\rightarrow$  (iv); (B)  $\rightarrow$  (iii); (C)  $\rightarrow$  (ii); (D)  $\rightarrow$  (i)  
 (4) (A)  $\rightarrow$  (iv); (B)  $\rightarrow$  (ii); (C)  $\rightarrow$  (iii); (D)  $\rightarrow$  (i)

Scan or tap for the  
full solution



**Q.18** What is the correct relationship between the pH of isomolar solutions of sodium oxide,  $\text{Na}_2\text{O}$  ( $\text{pH}_1$ ), sodium sulphide,  $\text{Na}_2\text{S}$  ( $\text{pH}_2$ ), sodium selenide,  $\text{Na}_2\text{Se}$  ( $\text{pH}_3$ ) and sodium telluride  $\text{Na}_2\text{Te}$  ( $\text{pH}_4$ )?

[AIPMT 2005]

- (1)  $\text{pH}_1 > \text{pH}_2 > \text{pH}_3 > \text{pH}_4$   
 (2)  $\text{pH}_1 > \text{pH}_2 \approx \text{pH}_3 > \text{pH}_4$   
 (3)  $\text{pH}_1 < \text{pH}_2 < \text{pH}_3 < \text{pH}_4$   
 (4)  $\text{pH}_1 < \text{pH}_2 < \text{pH}_3 \approx \text{pH}_4$

Scan or tap for the  
full solution



### ANSWER KEY

| Ques. | 1  | 2  | 3  | 4  | 5  | 6  | 7  | 8 | 9 | 10 | 11 |
|-------|----|----|----|----|----|----|----|---|---|----|----|
| Ans.  | 1  | 4  | 1  | 2  | 3  | 2  | 1  | 1 | 1 | 4  | 3  |
| Ques. | 12 | 13 | 14 | 15 | 16 | 17 | 18 |   |   |    |    |
| Ans.  | 2  | 1  | 4  | 2  | 2  | 4  | 1  |   |   |    |    |