Q1 - 24 January - Shift 1

Reaction of BeO with ammonia and hydrogen fluoride gives 'A' which on thermal decomposition gives BeF_2 and NH_4F. What is 'A' ?

(1) $(NH_4)_2BeF_4$

(2) H_3NBeF_3

(3) $(NH_4)BeF_3$

(4) $(NH_4)Be_2F_5$

Space for your notes:

Q2 - 24 January - Shift 1

Which of the Phosphorus oxoacid can create silver mirror from $AgNO_3$ solution ?

(1) $(HPO_3)_n$

(2) $H_4P_2O_5$

(3) $H_4P_2O_6$

(4) $H_4P_2O_7$

Space for your notes:

Q3 - 24 January - Shift 2

Sum of π-bonds present in peroxodisulphuric acid and pyrosulphuric acid is

Space for your notes:

Q4 - 25 January - 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

(1) P_4O_6 and H_3PO_3

(2) PCl_3 and H_3PO_3

(3) PCl_5 and H_3PO_4

(4) $POCl_3$ and H_3PO_4

Space for your notes:

Q5 - 25 January - Shift 1

Some reactions of NO_2 relevant to photochemical smog formation are

$$NO_2 \xrightarrow{\text{Sunlight}} \underset{\underset{B}{|A}}{X + Y}$$

Identify A, B, X and Y

(1) $X = [O], Y = NO, A = O_2, B = O_3$

(2) $X = N_2O, Y = [O], A = O_3, B = NO$

(3) $X = \frac{1}{2}O_2, Y = NO_2, A = O_3, B = O_2$

(4) $X = NO, Y = [O], A = O_2, B = N_2O_3$

Space for your notes:

Q6 - 25 January - Shift 2

A chloride salt solution acidified with dil. HNO_3 gives a curdy white precipitate, [A], on addition of $AgNO_3$. [A] on treatment with NH_4OH gives a clear solution, B.

(1) $H[AgCl_3]$ & $[Ag(NH_3)_2]Cl$

(2) $H[AgCl_3]$ & $(NH_4)[Ag(OH)_2]$

(3) AgCl & $[Ag(NH_3)_2]Cl$

(4) AgCl & $(NH_4)[Ag(OH)_2]$

Space for your notes:

Q7 - 25 January - Shift 2

A. Ammonium salts produce haze in atmosphere.

B. Ozone gets produced when atmospheric oxygen reacts with chlorine radicals.

C. Polychlorinated biphenyls act as cleansing solvents.

D. 'Blue baby' syndrome occurs due to the presence of excess of sulphate ions in water.

Choose the correct answer from the options given below :-

(1) A, B and C only
(2) B and C only
(3) A and D only
(4) A and C only

Space for your notes:

Q8 - 29 January - 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

(1) NO_2, N_2O_5
(2) NO_2, N_2O_4
(3) NO, NO_2
(4) N_2O_3, NO_2

Space for your notes:

Q9 - 29 January - Shift 1

The number of molecules or ions from the following, which do not have odd number of electrons are _____ .

(A) NO_2

(B) ICl_4^-

(C) BrF_3

(D) ClO_2

(E) NO_2^+

(F) NO

Space for your notes:

Q10 - 29 January - 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 _____ .

Space for your notes:

Q11 - 30 January - 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

(1) A > B > C > D

(2) A > B > D > C

(3) B > A > C > D

(4) D > C > B > A

Space for your notes:

Q12 - 31 January - Shift 1

Identify X, Y and Z in the following reaction. (Equation not balanced)

$$\dot{Cl}O + NO_2 \rightarrow \underline{X} \xrightarrow{H_2O} \underline{Y} + \underline{Z}$$

(1) $X=ClONO_2$, $Y=HOCl$, $Z = NO_2$
(2) $X=ClNO_2$, $Y=HCl$, $Z=HNO_3$
(3) $X=ClONO_2$, $Y=HOCl$, $Z=HNO_3$
(4) $X=ClNO_3$, $Y=Cl_2$, $Z=NO_2$

Space for your notes:

Q13 - 31 January - Shift 1

The oxidation sate of phosphorus in hypophosphoric acid is + _____ .

Space for your notes:

Q14 - 01 February - Shift 1

Given below are two statements:

Statement I: Chlorine can easily combine with oxygen to from 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.

(1) Both the statements I and II are true

(2) Statement I is true but Statement II is false

(3) Statement I is false but Statement II is true

(4) Both the Statements I and II are false

Space for your notes:

Q15 - 01 February - Shift 1

Sum of oxidation states of bromine in bromic acid and perbromic acid is _____ .

Space for your notes:

Answer Key

(As per Official NTA Key released on 2 Feb)

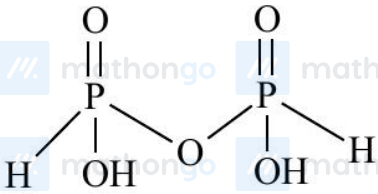
Q1 (1)	**Q2** (2)	**Q3** (8)	**Q4** (2)
Q5 (1)	**Q6** (3)	**Q7** (4)	**Q8** (3)
Q9 (3)	**Q10** (4)	**Q11** (1)	**Q12** (3)
Q13 (4)	**Q14** (1)	**Q15** (12)	

Q1 (1)

$$BeO + 2NH_3 + 4HF \rightarrow (NH_4)_2BeF_4 + H_2O$$

$$(NH_4)_2BeF_4 \xrightarrow{\Delta} BeF_2 + NH_4F$$

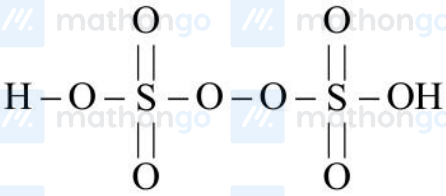
Q2 (2)



Oxyacid having P–H bond can reduce $AgNO_3$ to Ag.

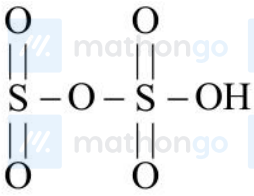
Q3 (8)

Peroxodisulphuric acid -



No. of π – bonds = 4

Pyro sulphuric acid -



No. of π – bonds = 4

Total π – bonds = 8

Q4 (2)

$$P_4 + 8SOCl_2 \rightarrow \underset{[A]}{4PCl_3} + 4SO_2 + 2S_2Cl_2$$

$$PCl_3 + 3H_2O \rightarrow \underset{[B]}{H_3PO_3} + 3HCl$$

Q5 (1)

$$NO_2 \xrightarrow{\text{Sun light}} \overbrace{[O]}^{X} + \overbrace{NO}^{Y}$$

$$O_2 \} A$$

$$\underbrace{O_3}_{B}$$

Q6 (3)

$$Cl^- + AgNO_3 \longrightarrow \underset{\substack{[A]\\ \text{Curdy white}\\ \text{precipitate}}}{AgCl}$$

$$AgCl + NH_4OH \longrightarrow \underset{\substack{[B]\\ \text{(Soluble Complex)}}}{\left[Ag(NH_3)_2\right]Cl}$$

Q7 (4)

B. $Cl + O_3 \longrightarrow O_2 + ClO$

D. 'Blue baby' syndrome occurs due to the presence of excess of nitrate ions in water.

Q8 (3)

$$4NH_3 + 5O_2 \xrightarrow{\Delta} 4NO + 6H_2O$$

(A)

$$2NO + O_2 \longrightarrow 2NO_2$$

(B)

Q9 (3)

ICl_4^-, BrF_3 and NO_2^+ do not have odd number of e

Q10 (4)

Acidic oxides are N_2O_3, NO_2, Cl_2O_7, SO_2

Q11 (1)

Bond dissociation energy of E–H bond in hydrides of group 16 follows the order

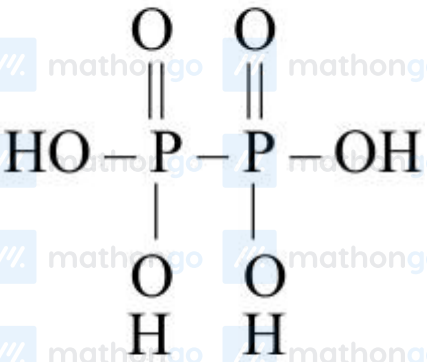
$H_2O > H_2S > H_2Se > H_2Te$

Q12 (3)

$$ClO + NO_2 \longrightarrow \underset{(X)}{ClONO_2} \xrightarrow{+H_2O} \underset{(Y)}{HOCl} + \underset{(Z)}{HNO_3}$$

Q13 (4)

$H_4P_2O_6$



O.S. of P is +4

Q14 (1)

Chlorine oxides, Cl_2O, ClO_2, Cl_2O_6 and Cl_2O_7 are

Q15 (12)

$HBrO_3$ (Bromic acid)

Ox. State of Br = +5

$HBrO_4$ (per bromic acid)

OX. State of Br = +7

Sum of Ox. State = 12