

CHEMISTRY

Topic: P-Block

- Q.1** Which out of the following gases is obtained when ammonium dichromate is heated -
- (A) Oxygen (B) Ammonia
(C) Nitrogen (D) Nitrous oxide
- Q.2** Among the trihalides of nitrogen which one is most basic -
- (A) NF_3 (B) NCl_3
(C) NI_3 (D) NBr_3
- Q.3** The correct sequence of decrease in the bond angle of the following hydrides is - :
- (A) $\text{NH}_3 > \text{PH}_3 > \text{AsH}_3 > \text{SbH}_3$
(B) $\text{NH}_3 > \text{AsH}_3 > \text{PH}_3 > \text{SbH}_3$
(C) $\text{SbH}_3 > \text{AsH}_3 > \text{PH}_3 > \text{NH}_3$
(D) $\text{PH}_3 > \text{NH}_3 > \text{AsH}_3 > \text{SbH}_3$
- Q.4** The low reactivity of nitrogen is due to -
- (A) Small atomic radius (B) High electronegativity
(C) Stable configuration (D) High bond dissociation energy
- Q.5** Which one of the following does not undergo hydrolysis -
- (A) AsCl_3 (B) SbCl_3
(C) PCl_3 (D) NF_3

- Q.6** Which one of the following properties of white phosphorous are shared by red phosphorous -
- (A) It dissolves in CS_2
 - (B) It burns when heated in air
 - (C) It reacts with NaOH to give PH_3
 - (D) It phosphorescences in air
- Q.7** Which one of the following pentafluorides cannot be formed -
- (A) PF_5 (B) AsF_5
 - (C) SbF_5 (D) BiF_5
- Q.8** The dimerisation of NO_2 as the temperature is lowered is accompanied by -
- (A) An increase in pressure
 - (B) A darkening in colour
 - (C) A decrease in paramagnetism
 - (D) The formation of a colloid
- Q.9** Which of the following reagents can separate nitric oxide from nitrous oxide -
- (A) Sodium nitroprusside solution
 - (B) Ferrous sulphate solution
 - (C) Nessler's reagent
 - (D) Tollen's reagent
- Q.10** Phosphine is not obtained by the reaction when -
- (A) White P is heated with NaOH
 - (B) Red P is heated with NaOH
 - (C) Ca_3P_2 reacts with water
 - (D) P_4O_6 is boiled with water

- Q.11** In P_4O_6 the number of oxygen atoms bonded to each phosphorus atom is -
- (A) 1.5 (B) 2
(C) 3 (D) 4
- Q.12** Which of the following statements are not correct about the hydrides of group 15 elements-
- (A) The hydrides of the elements of group 15 are ionic and have planar triangular shape
(B) The thermal stability of the hydrides decreases down the group
(C) the basic character of the hydrides decreases down the group
(D) The reducing nature of the hydrides increases down the group
- Q.13** Bismuth does not form stable pentahalide because of -
- (A) Its higher electronegativity
(B) Its smaller size
(C) Inert pair effect
(D) Non availability of d-orbitals
- Q.14** Which of the following is basic in nature -
- (A) H_3PO_3 (B) H_3BiO_3
(C) H_3AsO_3 (D) H_3SbO_3
- Q.15** Acidic nitrogen hydride is -
- (A) N_2H_4 (B) N_3H
(C) NH_2OH (D) NH_3
- Q.16** PCl_5 exists but NCl_5 does not because -
- (A) Nitrogen has no vacant d-orbitals
(B) NCl_5 is unstable
(C) Nitrogen atom is much smaller
(D) Nitrogen is highly inert.

Q.17 On heating a mixture of NH_4Cl and KNO_2 we get –

- (A) NH_4NO_3 (B) N_2
(C) NO (D) N_2O

Q.18 Which of the following phosphorus oxyacids can act as a reducing agent ?

- (A) H_3PO_3 (B) H_3PO_4
(C) $\text{H}_4\text{P}_2\text{O}_6$ (D) $\text{H}_4\text{P}_2\text{O}_7$

Q.19 When white phosphorous is heated with caustic soda, the compounds formed are -

- (A) $\text{PH}_3 + \text{NaH}_2\text{PO}_3$
(B) $\text{PH}_3 + \text{NaH}_2\text{PO}_2$
(C) $\text{PH}_3 + \text{Na}_2\text{HPO}_3$
(D) $\text{PH}_3 + \text{NaH}_2\text{PO}_4$

Q.20 The P – P – P bond angle in white phosphorus is-

- (A) 120° (B) 90°
(C) 60° (D) $109^\circ, 28'$

Q.21 Phosphine produces smoky rings when it comes in contact with air because -

- (A) It reacts with water vapour
(B) It reacts with nitrogen
(C) It burns in air
(D) It contains impurities of P_2H_4

Q.22 The solid PCl_5 exists as -

- (A) PCl_5 molecules (B) P_2Cl_{10}
(C) $[\text{PCl}_4]^+ [\text{PCl}_6]^-$ (D) None of these

Q.23 PCl_5 is kept in well stoppered bottles because -

- (A) It is highly volatile
- (B) It reacts with oxygen
- (C) It reacts readily with moisture
- (D) It is explosive

Q.24 Which of the following oxides will be least acidic -

- (A) P_4O_6 (B) P_4O_{10}
- (C) As_4O_6 (D) As_4O_{10}

Q.25 Which of the following oxy acids of Phosphorus is a reducing agent and monobasic -

- (A) H_3PO_2 (B) H_3PO_3
- (C) H_3PO_4 (D) $\text{H}_4\text{P}_2\text{O}_6$

Q.26 Which pair of oxides of nitrogen is paramagnetic ?

- (A) NO , N_2O (B) N_2O_5 , NO_2
- (C) N_2O_5 , N_2O (D) NO , NO_2

Q.27 What is false about N_2O_5 ?

- (A) It is anhydride of HNO_3
- (B) It is a powerful oxidizing agent
- (C) Solid N_2O_5 is called nitronium nitrate
- (D) Structure of N_2O_5 contains no $[\text{N} \rightarrow \text{O}]$ bond

Q.28 Which of the following oxides is most acidic ?

- (A) As_2O_3 (B) P_2O_3
- (C) Sb_2O_3 (D) N_2O_3

Q.29 Least acidic and most acidic oxides of nitrogen are -

(A) N_2O , N_2O_5 (B) N_2O , N_2O_4

(C) N_2O , NO (D) N_2O , N_2O_3

Q.30 The number of molecules of water needed to convert one molecule of P_2O_5 into orthophosphoric acid is -

(A) 2 (B) 3

(C) 4 (D) 5

ANSWER KEY

Que.	1	2	3	4	5	6	7	8	9	10
Ans.	C	C	A	D	D	B	D	C	B	B
Que.	11	12	13	14	15	16	17	18	19	20
Ans.	C	A	C	B	B	A	B	A	B	C
Que.	21	22	23	24	25	26	27	28	29	30
Ans.	D	C	C	C	A	D	D	D	A	B

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