1. Which of the following orders regarding the melting points of hydrides of Group 15 is
   1) $NH_3 > PH_3 > AsH_3$ 2) $NH_3 < PH_3 < AsH_3$
   3) $NH_3 > PH_3 < AsH_3$ 4) $NH_3 < PH_3 > AsH_3$
2. Which of the following orders regarding the bond distance M— H of the hydrides of Group 15 elements is correct
   1) $N-H > P-H > As-H$ 2) $N-H < P-H < As-H$
   3) $N-H > P-H < As-H$ 4) $N-H < P-H > As-H$
3. Which of the following orders regarding the bond angle H $-$M $-$H of the hydrides of Group 15 elements is correct
   1) $H-N-H > H-P-H > H-As-H$ 2) $H-N-H < H-P-H < H-As-H$
   3) $H-N-H > H-P-H < H-As-H$ 4) $H-As-H < H-P-H > H-As-H$
4. Which of the following orders regarding the bond enthalpy of M $-$H bond in the hydrides of Group15 Elements is correct
   1) $N-H > P-H > As-H$ 2) $N-H < P-H < As-H$
   3) $N-H > P-H < As-H$ 4) $N-H < P-H > As-H$
5. Which of the following molecules includes nitrogen atom having oxidation state equal to -2
   1) N_2 2) NH_2OH 3) N_2H_4 4) NH_3
6. Which of the following trihalides is not known
   1) NCI_3 2) PCI_3 3) NI_3 4) PI_3
7. Which of the following halides is not known
   1) NCI_5 2) PF_5 3) AsF_5 4) $SbCI_5$
8. Which of the following acids of phosphorus is a reducing acid
   1) H_3PO_3 2) H_3PO_4 3) $H_4P_2O_7$ 4) $(HPO_2)_3$
9. Which of the following acids is not an oxidizing agent
   1) H_3PO_4 2) $H_4P_2O_6$ 3) $H_4P_2O_7$ 4) H_3PO_2
10. Polymetaphosphoric acids has
    1) Linear structure of HPO_3 units 2) Branched structure of HPO_3 units
    3) Cyclic structure of HPO_3 units 4) Discrete molecules of $(HPO_3)_2$, $(HPO_3)_3$, and so on
11. In which of the following acids, P $-$ P bond is present
    1) Hypo phosphoric acid 2) Pyrophosphoric acid
    3) Orthophosphoric acid 4) Polymetaphosphoric acid
12. The oxide which on dissolving in water turns blue litmus red is
    1) P_2O_5 2) As_2O_3 3) BaO 4) Sb_2O_3
13. Which of the following acids contains phosphorus in the +4 oxidation state

1) Hypo phosphorous acid 2) Orthophosphoric acid
3) Pyrophosphoric acid 4) Hypo phosphoric acid

14. Which of the following statements is not correct
1) The molecule of NO_2 is angular
2) Low temperature favours the dimerization of NO_2 to N_2O_4
3) NO_2 is soluble in water giving a mixture of HNO_2 and HNO_3
4) The structure of N_2O_4 is nonplanar

15. Which of the following statements is not correct
1) Phosphorus trioxide exists as dimer P_4O_6
2) Phosphorus pentoxide exists as dimer P_4O_{10}
3) Ortho phosphorous acid, H_3PO_3,is a tribasic acid
4) Ortho phosphoric acid, H_3PO_4, is tribasic acid

16. Which of the following halides does not exist
1) PI_5 2) PBr_5 3) PCI_5 4) PF_5

17. Which of the following hydrides does not exist
1) NH_3 2) PH_5 3) AsH_3 4) N_2H_4

18. Which of the following hydrides is thermally least stable
1) NH_3 2) PH_3 3) AsH_3 4) SbH_3

19. Which of the following halides does not hydrolyse
1) NF_3 2) PCI_3 3) $AsCI_3$ 4) $SbCI_3$

20. Which of the following oxides does not contain N – N bond
1) N_2O 2) N_2O_3 3) N_2O_4 4) N_2O_5

21. In the brown-ring test of nitrate ion, the compound formed is
1) $\left[Fe(H_2O)_5NO\right]^{2+}$ 2) $\left[Fe(H_2O)_5NO\right]^{3+}$
3) $\left[Fe(H_2O)_4(NO_2)\right]^{2+}$ 4) $\left[Fe(H_2O)_3(NO)_3\right]^{2+}$

22. Which of the following halides of nitrogen is expected to be most stable
1) NF_3 2) NCI_3 3) NBr_3 4) NI_3

23. Which of the following halides of nitrogen is expected to have least dipole moment
1) NF_3 2) NCI_3 3) NBr_3 4) NI_3

24. The order of stability of hydrides of Group 15 is
1) $NH_3 > PH_3 > AsH_3$ 2) $NH_3 < PH_3 < AsH_3$
3) $NH_3 > PH_3 < AsH_3$ 4) $NH_3 < PH_3 > AsH_3$

25. Which of the following represents metaphosphoric acid
1) HPO_3 2) H_3PO_3 3) H_3PO_4 4) $H_4P_2O_7$

26. Which of the following represents hypo phosphorous acid
1) HPO_3 2) H_3PO_3 3) H_3PO_4 4) H_3PO_2

27. When phosphorus is heated with conc. HNO_3, it reduces the acid to

1) NO 2) NO_2 3) N_2O_3 4) N_2O_5

28. P_4O_{10} is the anhydride of

1) H_3PO_2 2) H_3PO_3 3) H_3PO_4 4) $H_4P_2O_7$

29. When P_4O_{10} is boiled with water, the final product of hydrolysis is

1) H_3PO_2 2) H_3PO_3 3) H_3PO_4 4) $H_4P_2O_7$

30. Which of the following metaphosphate ion is not known to exist in free state

1) PO_3^- 2) $(PO_3)_2^{2-}$ 3) $(PO_3)_3^{3-}$ 4) $(PO_3)_4^{4-}$

KEY SHEET

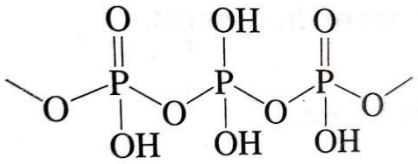
CHEMISTRY

1	2	3	4	5	6	7	8	9	10
3	2	1	1	3	3	1	1	4	1
11	**12**	**13**	**14**	**15**	**16**	**17**	**18**	**19**	**20**
1	1	4	4	3	1	2	4	1	4
21	**22**	**23**	**24**	**25**	**26**	**27**	**28**	**29**	**30**
1	1	4	1	1	4	2	3	3	1

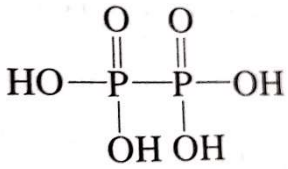
PHINTS
CHEMISTRY

1. Because of hydrogen bonding, the melting point of NH_3 is greater than PH_3.
2. As the size of the atom of Group 15 increases, the bond length between the atom and hydrogen also Increases
3. Because of more positive charge on hydrogen and smaller size of nitrogen, the repulsion between H and H atoms makes the bond angle in NH_3 bigger than in PH_3 and AsH_3
4. N – H bond is more stronger than P – H which, in turn, is stronger than As – H
5. Conceptional
6. Because of the bigger size of iodine, it cannot be accommodated around the small size nitrogen atom.
7. The oxidation number of nitrogen does not exceed +3 because of the nonavailability of d orbitals.
8. H_3PO_3 contains phosphorus in +3 oxidation state. It can be oxidation to +5 oxidation state ($i.e. H_3PO_4$). Hence, it is a reducing agent
9. H_3PO_2 contains phosphorus in +1 oxidation state. Its oxidation state cannot be reduced further. Hence it is not an oxidizing agent

10. The structure of polymetaphosphoric acid is



11. Hypophosphoric acid is $H_4P_2O_6$. Its structure is



12. P_2O_5 is an acidic Oxide.
13. Hypophosphoric acid is $H_4P_2O_6$. The oxidation state of P is +4.
14. The structure of N_2O_4 is planar
15. H_3PO_3 is a dia basic acid.
16. Conceptional
17. Conceptional
18. The stability of hydrides decreases down the group
19. Conceptional
20. Conceptional
21. Conceptional
22. Fluorine has the smallest size amongst halogens.
23. Conceptional
24. Conceptional
25. Conceptional
26. Conceptional
27. Conceptional
28. $P_4O_{10} + 6H_2O \rightarrow 4H_3PO_4$
29. Conceptional
30. The free Mon metaphosphate ions does not exit. The metaphosphates from a family of ring compounds

PAPER SETTER_HYD-CT1

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1	MD. YASEEN	CHEMISTRY	8498014605