

19. Amongst the following the central atoms are directly bonded in
 (1) N_2O_5 (2) $S_2O_5^{2-}$
 (3) P_4O_{10} (4) Mn_2O_7
20. The chain length of silicones can be controlled by
 (1) $(CH_3)_3SiCl$
 (2) Addition of Cu powder
 (3) Elevation of temperature
 (4) None of these
21. Which of the following statement is incorrect regarding B_2H_6 ?
 (1) On methylation it gives $B_2H(CH_3)_5$
 (2) It has two $2e-3C$ bonds
 (3) There can be maximum six atoms in a plane
 (4) It has four $2e-2C$ bonds
22. Red and white phosphorus are similar in
 (1) smell (2) solubility in CS_2
 (3) Hybridisation of P (4) Stability
23. Which of the following is strongest oxidizing agent
 (1) $HOCl$ (2) $HClO_2$
 (3) $HClO_3$ (4) $HClO_4$
24. In which species O–O bond is present
 (1) $S_2O_8^{2-}$ (2) $S_4O_6^{2-}$
 (3) SO_3^{2-} (4) $S_2O_7^{2-}$
25. Glass is soluble in
 (1) aqua regia (2) H_2SO_4
 (3) HF (4) $HClO_4$
26. Paramagnetic oxide is
 (1) NO (2) N_2O_4
 (3) P_4O_6 (4) N_2O_5
27. Which oxide does not act as a reducing agent
 (1) NO (2) NO_2
 (3) N_2O (4) N_2O_5
28. Borax bead test is not given by
 (1) An aluminium salt (2) A cobalt salt
 (3) A copper salt (4) A nickel salt
29. The reaction showing endothermic nature and reduction of halogen is
 (1) $F_2 + \frac{1}{2}O_2 \rightarrow F_2O$
 (2) $Cl_2 + O_2 \rightarrow Cl_2O$
 (3) $F_2 + H_2O \rightarrow 2HF + \frac{1}{2}O_2$
 (4) None of the above
30. In which of the following oxy acid of sulphur sulphur atoms has different oxidation states
 (1) $H_2S_4O_6$ (2) $H_2S_2O_8$
 (3) $H_2S_2O_4$ (4) All
31. Which of the following is most acidic?
 (1) Cl_2O_7 (2) SO_3
 (3) P_2O_5 (4) SiO_2
32. Which of the following is not peroxide
 (1) Na_2O_2 (2) CaO_2
 (3) PbO_2 (4) H_2O_2
33. In which of the following reaction, phosphine is not obtained as product
 (1) $Ca_3P_2 + HCl \longrightarrow$ (2) $P_4 + NaOH \longrightarrow$
 (3) $H_3PO_4 \xrightarrow{\Delta}$ (4) $H_3PO_3 \xrightarrow{\Delta}$
34. Correct statement about boric acid is
 (1) boron is sp^3 hybridised
 (2) boric acid is triprotic acid
 (3) it is used in the treatment of eye infection
 (4) It forms covalent network
35. Which of the following oxide is acidic in nature?
 (1) B_2O_3 (2) Al_2O_3 (3) Ga_2O_3 (4) In_2O_3
36. The most commonly used reducing agent is
 (1) $AlCl_3$ (2) $PbCl_2$ (3) $SnCl_4$ (4) $SnCl_2$
37. Which of the following are peroxy-acid of sulphur
 (1) H_2SO_5 and $H_2S_2O_8$
 (2) H_2SO_5 and $H_2S_2O_7$
 (3) $H_2S_2O_7$ and $H_2S_2O_8$
 (4) $H_2S_2O_6$ and $H_2S_2O_7$
38. The element which forms neutral as well as acidic oxide is :-
 (1) Sn (2) Si (3) C (4) P
39. P_4O_{10} has short and long P–O bonds. The number of short P–O bonds in this compound is :-
 (1) 1 (2) 2 (3) 3 (4) 4
40. Nitrogen dioxide can be obtained by heating:-
 (1) KNO_3 (2) $Pb(NO_3)_2$
 (3) NH_4NO_3 (4) All of these

41. $\text{MF} + \text{XeF}_4 \rightarrow \text{'A'}$ (M – alkali metal)
hybridisation of A and shape of A is :-
(1) sp^3d , Trigonal bipyramidal
(2) sp^3d^3 , distorted octahedral
(3) sp^3d^3 , pentagonal planar
(4) No compound formed at all
42. Which oxide is most acidic :-
(1) Al_2O_3 (2) Na_2O
(3) MgO (4) CaO
43. Cl_2O_6 is an anhydride of :-
(1) HClO_3
(2) HClO_2
(3) HClO_4
(4) Mixed anhydride of HClO_3 & HClO_4
44. Carbogen is a mixture of
(1) O_2 & H_2 (2) CO_2 & O_2
(3) O_2 & Air (4) O_2 & Ne
45. A black sulphide when treated with ozone becomes white, the white compound is :-
(1) ZnSO_4 (2) CaSO_4
(3) BaSO_4 (4) PbSO_4
46. An example of tetrabasic acid is :-
(1) Orthophosphorus acid
(2) Orthophosphoric acid
(3) Metaphosphoric acid
(4) Pyrophosphoric acid
47. The reducing power of divalent species decreases in the order is :-
(1) $\text{Ge} > \text{Sn} > \text{Pb}$ (2) $\text{Sn} > \text{Ge} > \text{Pb}$
(3) $\text{Pb} > \text{Sn} > \text{Ge}$ (4) None of these
48. Basicity of phosphinic acid is
(1) 1 (2) 2 (3) 3 (4) 4
49. Empirical formula of Bleaching powder is :-
(1) Ca(OH)_2 (2) CaOCl_2
(3) $\text{Ca(OC}l)_2$ (4) CaClO_3
50. Which of the following silicate is called disilicate?
(1) Orthosilicate (2) Pyrosilicate
(3) Single-chain silicate (4) None of these
51. The cationic part of solid XeF_6 is having the " _____ " shape:
(1) Linear (2) Angular
(3) Square pyramidal (4) Tetrahedral
52. In the hydrolysis of ICl , the products are:
(1) $\text{HI} + \text{HCl}$ (2) $\text{HI} + \text{HOCl}$
(3) $\text{HCl} + \text{HOI}$ (4) $\text{HOCl} + \text{HOI}$
53. Which of the following compounds are the common products obtained in the hydrolysis of XeF_6 and XeF_4 ?
(1) XeO_2F_2 (2) HF
(3) XeO_3 (4) Both (2) and (3)
54. Find the incorrect match:
(1) Al_2Cl_6 : 3C-4e bond is present
(2) $\text{Al}_2(\text{CH}_3)_6$: All carbon atoms are sp^3 -hybridized
(3) I_2Cl_6 : Nonplanar
(4) Al_2Br_6 : Nonpolar
55. Which of the following is not a Lewis acid?
(1) SiF_4 (2) FeCl_3 (3) BF_3 (4) C_2H_4
56. Thallium shows different oxidation states because:
(1) Of its high reactivity
(2) Of inert pair of electrons
(3) Of its amphoteric nature
(4) It is a transition metal
57. H_3BO_3 is :
(1) Monobasic and weak Lewis acid
(2) Monobasic and weak bronsted acid
(3) Monobasic acid and strong Lewis acid
(4) Tribasic acid and weak bronsted acid
58. What is formula for carbon suboxide?
(1) CO (2) CO_2
(3) C_2O_4 (4) C_3O_2
59. CCl_4 is used as fire extinguisher because:
(1) Its m.pt. is high
(2) It forms covalent bond
(3) Its b.pt. is low
(4) It gives incombustible vapours
60. Marsh gas contains:
(1) CH_4 (2) CO_2
(3) C_2H_6 (4) N_2
61. Carborundum is:
(1) Al_2O_3 (2) SiC (3) BF_3 (4) B_4C
62. The acid which contains a peroxo linkage is:
(1) Sulphurous acid (2) Pyrosulphuric acid
(3) Dithionic acid (4) Caro's acid

63. In SiF_6^{2-} and SiCl_6^{2-} , which one is known and why?
 (1) SiF_6^{2-} because of small size of F
 (2) SiF_6^{2-} because of large size of F
 (3) SiCl_6^{2-} because of small size of Cl
 (4) SiCl_6^{2-} because of large size of Cl
64. The stability of dihalides of Si, Ge, Sn, and Pb increase stability in the sequence:
 (1) $\text{PbX}_2 < \text{SnX}_2 < \text{GeX}_2 < \text{SiX}_2$
 (2) $\text{GeX}_2 < \text{SiX}_2 < \text{SnX}_2 < \text{PbX}_2$
 (3) $\text{SiX}_2 < \text{GeX}_2 < \text{PbX}_2 < \text{SnX}_2$
 (4) $\text{SiX}_2 < \text{GeX}_2 < \text{SnX}_2 < \text{PbX}_2$
65. Products formed when $\text{Pb}(\text{NO}_3)_2$ is heated are:
 (1) PbO , N_2 , O_2 (2) $\text{Pb}(\text{NO}_2)_2$, O_2
 (3) PbO , NO_2 , O_2 (4) Pb , N_2 , O_2
66. Silver chloride dissolves in excess of NH_4OH . The cation present in solution is:
 (1) Ag^+ (2) $[\text{Ag}(\text{NH}_3)_4]^+$
 (3) $[\text{Ag}(\text{NH}_3)_2]^+$ (4) $[\text{Ag}(\text{NH}_3)_6]^+$
67. The catalyst used in the manufacture of ammonia by Haber's process is:
 (1) Pt (2) Fe_2O_3 (3) CuCl_2 (4) V_2O_5
68. Industrial preparation of nitric acid by Ostwald's process involves:
 (1) Oxidation of NH_3
 (2) Reduction of NH_3
 (3) Hydrogenation of NH_3
 (4) Hydrolysis of NH_3
69. When zinc reacts with very dilute nitric acid it produces:
 (1) NH_4NO_3 (2) NO
 (3) NO_2 (4) H_2
70. Which of the following oxides of nitrogen is the anhydride of nitrous acid?
 (1) NO (2) N_2O_3
 (3) N_2O_4 (4) N_2O_5
71. Polar oxide of carbon is :-
 (1) CO (2) CO_2
 (3) C_3O_2 (4) Both 1 and 3
72. Aqueous solution of ammonia consists of :-
 (1) H^+ only (2) OH^- only
 (3) NH_4^+ only (4) NH_4^+ and OH^-
73. Phosphine, acetylene and ammonia can be formed by treating water with:
 (1) Mg_3P_2 , Al_4C_3 , Li_3N
 (2) Ca_3P_2 , CaC_2 , Mg_3N_2
 (3) Ca_3P_2 , Be_2C , NH_4NO_3
 (4) Ca_3P_2 , Mg_2C_3 , NH_4NO_3
74. Atoms in P_4 molecule of white phosphorus are arranged regularly in the following way:
 (1) At the corners of a cube
 (2) At the corners of an octahedron
 (3) At the corners of a tetrahedron
 (4) At the center and corners of a tetrahedron
75. Which is formed when $\text{K}_2\text{Cr}_2\text{O}_7$, CaCl_2 , and conc. H_2SO_4 are heated?
 (1) $\text{Cr}_2(\text{SO}_4)_3$ (2) CrCl_3
 (3) CrO_2Cl_2 (4) K_2CrO_4
76. Which one of the following reactions does not occur ?
 (1) $\text{F}_2 + 2\text{Cl}^- \longrightarrow 2\text{F}^- + \text{Cl}_2$
 (2) $\text{Cl}_2 + 2\text{F}^- \longrightarrow 2\text{Cl}^- + \text{F}_2$
 (3) $\text{Br}_2 + 2\text{I}^- \longrightarrow 2\text{Br}^- + \text{I}_2$
 (4) $\text{Cl}_2 + 2\text{Br}^- \longrightarrow 2\text{Cl}^- + \text{Br}_2$
77. BCl_3 does not exist as dimer but BH_3 exists as dimer (B_2H_6) because:
 (1) Chlorine is more electronegative than hydrogen
 (2) There is $p_\pi - p_\pi$ back bonding in BCl_3 , but BH_3 does not contain such multiple bonding
 (3) Large sized chlorine atoms do not fit in between the small boron atoms, whereas small-sized hydrogen atoms fit between boron atoms
 (4) None of these

78. Red lead is :
 (1) PbO (2) Pb₃O₄
 (3) PbO₂ (4) HgS
79. The most stable and basic hydride of 15th group is :
 (1) NH₃ (2) PH₃ (3) AsH₃ (4) BiH₃
80. C — C bond length is maximum in:
 (1) Diamond (2) Graphite
 (3) Napthalene (4) Fullerene
81. N forms NCl₃, whereas P can form both PCl₃ and PCl₅. Why?
 (1) P has vacant d-orbitals which can be used for bonding but N does not have
 (2) N atom is larger in size than P
 (3) P is more reactive towards Cl than N
 (4) None of the above
82. Which is in the decreasing order of boiling points of VA group hydrides?
 (1) NH₃ > PH₃ > AsH₃ > SbH₃
 (2) SbH₃ > AsH₃ > PH₃ > NH₃
 (3) PH₃ > NH₃ > AsH₃ > SbH₃
 (4) SbH₃ > NH₃ > AsH₃ > PH₃
83. Which compound acts as an oxidizing as well as a reducing agent?
 (1) SO₂ (2) Mn₂O₇
 (3) Al₂O₃ (4) CrO₃
84. The most powerful oxidizing agent is :
 (1) Fluorine (2) Chlorine
 (3) Bromine (4) Iodine
85. Which one of the hydracids does not form any precipitate with AgNO₃?
 (1) HF (2) HCl (3) HBr (4) HI
86. Which of the following structure is non-planar?
 (1) Na₃B₃O₆
 (2) I₂Cl₆
 (3) Sheet silicates
 (4) Inorganic graphite layer
87. In the reaction $\text{LiH} + \text{AlH}_3 \longrightarrow \text{LiAlH}_4$ AlH₃ and LiH act as:
 (1) Lewis acid and Lewis base
 (2) Lewis base and Lewis acid
 (3) Bronsted base and Bronsted acid
 (4) None of these
88. Which one is not an acid salt?
 (1) NaH₂PO₂ (2) NaH₂PO₃
 (3) NaH₂PO₄ (4) None of these
89. The most thermodynamically stable allotropic form of phosphorus is:
 (1) Red (2) White
 (3) Black (4) Yellow
90. Identify the incorrect statement among the following:
 (1) Ozone reacts with SO₂ to give SO₃
 (2) Silicon reacts with NaOH(aq.) in the presence of air to give Na₂SiO₃
 (3) Cl₂ reacts with excess of NH₃ to give N₂ and NH₄Cl.
 (4) Br₂ reacts with hot and strong NaOH solution to give NaBr, NaBrO₄ and H₂O.
91. The product of oxidation of I⁻ with MnO₄⁻ in alkaline medium is:
 (1) IO₃⁻ (2) I₂ (3) IO⁻ (4) IO₄⁻
92. The chemical formula of feldspar is :
 (1) KAlSi₃O₈ (2) Na₃AlF₆
 (3) NaAlO₂ (4) K₂SO₄
93. Which of the following is correct match:
 (1) Gun metal → Cu, Sn & Zn
 (Red brass)
 (2) White metal → Contains Li
 (3) Stainless Steel → Fe, Cr, Ni, Carbon
 (4) All
94. Which is used for estimation of carbonmonoxide ?
 (1) I₂O₅ (2) ClO₂ (3) BrO₃ (4) Cl₃O₇
95. There is no S—S bond in
 (1) S₂O₄²⁻ (2) S₂O₅²⁻
 (3) S₂O₃²⁻ (4) S₂O₇²⁻
96. Total number of lone pairs of electron and P—O—P linkage present in dimer of P₂O₅ are :
 (1) 16 (2) 22 (3) 26 (4) 30
97. The number of S—S bonds in polythionic acid (H₂S_nO₆):
 (1) n (2) n - 1
 (3) n - 2 (4) None of these
98. Which of the following halogen oxides is ionic?
 (1) I₄O₉ (2) I₂O₅ (3) BrO₂ (4) ClO₃

99. Antichlor is a compound:
 (1) Which absorbs chlorine
 (2) Which removes excess of Cl_2 from a material
 (3) Which liberates Cl_2 from bleaching powder
 (4) Which acts as a catalyst in the manufacture of Cl_2
100. Which of the following statements regarding orthoboric acid (H_3BO_3) is false?
 (1) It acts as a weak monobasic acid
 (2) It is soluble in hot water
 (3) It has a planar structure
 (4) It acts as a tribasic acid
101. Which of the following oxides is acidic in nature?
 (1) B_2O_3 (2) Al_2O_3 (3) Ga_2O_3 (4) ZnO
102. Catenation i.e., linking of similar atoms depends on size and electronic configuration of atoms. The tendency of catenation in group 14 elements follows the order
 (1) $\text{C} > \text{Si} > \text{Ge} > \text{Sn}$ (2) $\text{C} \gg \text{Si} > \text{Ge} \approx \text{Sn}$
 (3) $\text{Si} > \text{C} > \text{Sn} > \text{Ge}$ (4) $\text{Ge} > \text{Sn} > \text{Si} > \text{C}$
103. Cement, the important building material is a mixture of oxides of several elements. Besides calcium, iron and sulphur, oxides of elements of which of the group(s) are present in the mixture?
 (1) Group 2
 (2) Groups 2, 13 and 14
 (3) Groups 2 and 13
 (4) Groups 2 and 14
104. The possible oxidation state of Tl are:
 (1) +1 and +2 (2) +2 and +3
 (3) +1 and -1 (4) +1 and +3
105. Nitrogen gas is liberated by thermal decomposition of :
 (1) NH_4NO_2 (2) NaN_3
 (3) $(\text{NH}_4)_2\text{Cr}_2\text{O}_7$ (4) All
106. $\text{BX}_3 + \text{NH}_3 \xrightarrow{\text{R.T.}} \text{BX}_3 \cdot \text{NH}_3 + \text{Heat}$ of adduct formation (ΔH), ΔH is maximum for (Numerical value)
 (1) BF_3 (2) BCl_3
 (3) BBr_3 (4) BI_3
107. Which of the following oxyacid contains both P-H and P-P bond simultaneously?
 (1) $\text{H}_4\text{P}_2\text{O}_5$ (2) $\text{H}_4\text{P}_2\text{O}_7$
 (3) $\text{H}_4\text{P}_2\text{O}_6$ (4) None
108. $\text{Na}_2\text{B}_4\text{O}_7 \cdot 10\text{H}_2\text{O} \xrightarrow{\text{Heat}} \text{X} + \text{NaBO}_2 + \text{H}_2\text{O}$
 $\text{X} + \text{Cr}_2\text{O}_3 \xrightarrow{\text{Heat}} \text{Y}$ (Green coloured) X and Y are :
 (1) Na_3BO_3 and $\text{Cr}(\text{BO}_2)_3$
 (2) $\text{Na}_2\text{B}_4\text{O}_7$ and $\text{Cr}(\text{BO}_2)_3$
 (3) B_2O_3 and $\text{Cr}(\text{BO}_2)_3$
 (4) B_2O_3 and CrBO_3

P-BLOCK ELEMENTS

ANSWER KEY

Que.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Ans.	1	2	4	4	2	4	4	4	4	1	4	3	2	1	3
Que.	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
Ans.	2	3	3	2	1	1	3	1	1	3	1	4	1	3	1
Que.	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45
Ans.	1	3	3	3	1	4	1	3	4	2	3	1	4	2	4
Que.	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60
Ans.	4	1	1	2	2	3	3	4	3	4	2	1	4	4	1
Que.	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75
Ans.	2	4	1	4	3	3	2	1	1	2	1	4	2	3	3
Que.	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90
Ans.	2	3	2	1	1	1	4	1	1	1	3	1	1	3	4
Que.	91	92	93	94	95	96	97	98	99	100	101	102	103	104	105
Ans.	1	1	4	1	4	3	2	1	2	4	1	2	2	4	4
Que.	106	107	108												
Ans.	4	4	3												