

7. $4\text{BCl}_3 + 3\text{LiAlH}_4 \longrightarrow \text{A} + 3\text{AlCl}_3 + 3\text{LiCl}$
When A reacts with NaOH it produces a colourless combustible gas and another compound 'B'.
Select incorrect statement about 'B'.
(A) Its aqueous solution turns red litmus blue
(B) It shows anionic hydrolysis
(C) It shows cationic hydrolysis
(D) It can also produce by reaction of boron with NaOH
CPB184
8. The structural unit present in pyrosilicates is :
(A) $\text{Si}_3\text{O}_9^{6-}$ (B) SiO_4^{4-} (C) $\text{Si}_2\text{O}_7^{6-}$ (D) $(\text{Si}_2\text{O}_5^{2-})_n$
CPB185
9. Bauxite and cryolite are the minerals of which elements?
(A) B (B) Al (C) Ga (D) In
CPB112
10. Which of the following does not occur as solid metal at near room temperature?
(A) B (B) Al (C) Ga (D) In
CPB110
11. Boron reacts with air to give:
(A) B_2O_3 (B) BN (C) Both (D) None
CPB113
12. Diborane readily reacts with water forming –
(A) Diborate and O_2 (B) Boric acid and O_2
(C) Boric acid and H_2 (D) Diborate and H_2
CPB130

Carbon Family

13. Among the following, Amphoteric oxides are :
(A) SiO , SiO_2 , GeO_2 (B) SnO , SnO_2 , PbO_2 (C) CO , SiO_2 , CO_2 (D) None of these
CPB144
14. Purest allotrope of carbon is :
(A) Diamond (B) Graphite (C) Fullerene (D) Coal
CPB147
15. The number of types of bonds between two carbon atoms in calcium carbide is:-
(A) One sigma, two pi (B) One sigma, one pi
(C) Two sigma, one pi (D) Two sigma, two pi
CPB167
16. Metallic character of group -14 elements:
(A) Decreases from top to bottom (B) Increases from top to bottom
(C) Does not change gradually (D) Has no significance.
CPB142

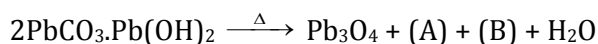
17. E represents an element belonging to carbon family.



- (A) Stability of EX_4 decreases down the 14th group
 (B) PbI_4 does not exist
 (C) Ge & Pb forms EX_2 as well.
 (D) All are correct

CPB186

18. When heating white lead then find out released gas (A) and (B)

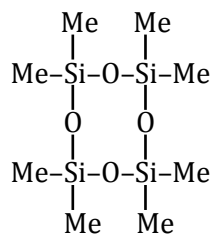


(white lead)

- (A) CO, O₂ (B) CO₂, O₂ (C) CO₂, CH₄ (D) CO, CO₂

CPB187

19. Given type of silicones are called [P]



[P] is prepared by controlled hydrolysis of [Q]. [P] & [Q] are respectively.

- (A) Linear silicone, CH_3SiCl_3 (B) branched silicone, $(\text{CH}_3)_3\text{SiCl}$
 (C) Cyclic silicone, $(\text{CH}_3)_2\text{SiCl}_2$ (D) Cyclic silicone, CH_3SiCl_3

CPB188

20. Given the order of density : Diamond > Graphite > Fullerene C₆₀ ; choose the correct order for C-C bond length

(Consider larger bond length if there are two different bond lengths)

- (A) Diamond < graphite < fullerene (C₆₀) (B) Diamond > graphite > fullerene (C₆₀)
 (C) Diamond > fullerene (C₆₀) > graphite (D) Diamond < fullerene (C₆₀) < graphite

CPB189

21. CCl₄ is inert towards hydrolysis but SiCl₄ is readily hydrolysed because

- (A) carbon cannot expand its octet but silicon can expand its octet
 (B) ionisation potential of carbon is higher than silicon
 (C) carbon forms double and triple bonds
 (D) electronegativity of carbon is higher than that of silicon

CPB190

22. PbF₄, PbCl₄ exists but PbBr₄ and PbI₄ do not exist because of :

- (A) Large size of Br⁻ and I⁻ (B) Strong oxidising character of Pb⁺⁴
 (C) Strong reducing character of Pb⁺⁴ (D) Low electro negativity of Br⁻ and I⁻

CPB191

23. Select the correct option regarding the bond strength of $C^{14}O^{16}$, $C^{12}O^{16}$, $C^{14}O^{18}$.

- (A) $C^{14}O^{18} > C^{14}O^{16} > C^{12}O^{16}$ (B) $C^{14}O^{18} < C^{14}O^{16} < C^{12}O^{16}$
 (C) $C^{14}O^{18} > C^{14}O^{16} < C^{12}O^{16}$ (D) $C^{14}O^{18} < C^{14}O^{16} > C^{12}O^{16}$

CPE192

Nitrogen Family

24. PCl_5 on reaction with alcohol gives :

- (A) Alkyl halide (B) Alkane (C) Dihalides (D) Alkene

CPE145

25. Which of the following oxyacid contains P – P bond?

- (A) $H_4P_2O_8$ (B) $H_4P_2O_5$ (C) $H_4P_2O_7$ (D) $H_4P_2O_6$

CPE147

26. Pick the incorrect answer from the choices given below.

- (A) $H_3PO_2 > H_3PO_3$: Reducing nature (B) $H_3PO_4 > H_3PO_2$: Basicity
 (C) H_3PO_3 : Disproportionates on heating (D) $(HPO_3)_3$: Three P–H bonds

CPE149

27. The thermal stability of the hydrides of group 15 follows the order:

- (A) $NH_3 < PH_3 < AsH_3 < SbH_3 < BiH_3$ (B) $NH_3 > PH_3 > AsH_3 > SbH_3 > BiH_3$
 (C) $PH_3 > NH_3 > AsH_3 > SbH_3 < BiH_3$ (D) $AsH_3 < PH_3 > SbH_3 > BiH_3 > NH_3$

CPE289

Oxygen Family

28. The correct order of electron affinity is :

- (A) $O > S > Se > Te > Po$ (B) $Po > Te > Se > S > O$
 (C) $S > O > Se > Te > Po$ (D) $S > Se > Te > Po > O$

CPE163

29. The group 16 element with highest ionisation energy:

- (A) S (B) O (C) Se (D) Po

CPE164

30. H_2O is a liquid while H_2S is a gas. The reason is :

- (A) H_2O has higher van der waal forces (B) Compact nature of H_2O
 (C) Hydrogen bonding in H_2O (D) Electronegativity difference.

CPE166

31. O_2 molecule is:

- (A) Diamagnetic (B) Polar (C) Paramagnetic (D) Odd electron molecule

CPE167

32. Oxygen is industrially prepared by :

- (A) Decomposition of H_2O_2
 (B) Electrolysis of water
 (C) Decomposition of permanganates, chlorates and nitrates
 (D) Fractional distillation of air

CPE168

33. $2\text{SO}_2 + \text{O}_2 \xrightarrow{\text{'X'}} 2\text{SO}_3$, the catalyst 'X' is :
 (A) CuCl_2 (B) Ni (C) Pt (D) V_2O_5 CPE169
34. Pick out the statement which is incorrect :
 (A) Oxygen is paramagnetic in all the three states of matter
 (B) Ozone is diamagnetic
 (C) Ozone is a linear molecule
 (D) The O–O bonds in Ozone have partial double bond character CPE175
35. The transition temperature of α – Sulphur to β -Sulphur is :
 (A) 393 K (B) 369 °C (C) 369 K (D) 385.8 K CPE189
36. The S_6 molecule has :
 (A) Ring form (B) Chair form (C) Hexagonal form (D) Crown form CPE191
37. By which of the following, SO_2 is formed?
 (A) Reaction of dilute H_2SO_4 with Zn (B) Heating of $\text{Fe}_2(\text{SO}_4)_3$
 (C) Reaction of concentrated H_2SO_4 with Cu (D) Heating of CuSO_4 CPE193
38. The shape and hybridisation of SO_2 molecule is :
 (A) V-shaped, sp^3 (B) Bent, sp^2 (C) Bent, dsp^2 (D) Trigonal planar, sp^2 CPE196

Halogen Family

39. HCl gas is dried by passing through:
 (A) Conc. H_2SO_4 (B) Anhydrous CaCl_2 (C) P_2O_5 (D) Quick lime CPE239
40. The INCORRECT statement about HCl is:
 (A) It is a colourless, pungent smelling gas (B) It is not combustible
 (C) It changes blue litmus red, when dry (D) It is extremely soluble in water. CPE240
41. Salt producing family is:
 (A) Nitrogen family (B) Carbon family (C) Halogen family (D) Inert gas family CPE214
42. Match the Column-I and Column-II :

Column – I	Column – II
(a) F_2	(p) Green
(b) Cl_2	(q) Violet
(c) Br_2	(r) Yellow
(d) I_2	(s) Red
(A) $a \rightarrow p$; $b \rightarrow r$; $c \rightarrow q$; $d \rightarrow s$	(B) $a \rightarrow r$; $b \rightarrow p$; $c \rightarrow s$; $d \rightarrow q$
(C) $a \rightarrow p$; $b \rightarrow q$; $c \rightarrow r$; $d \rightarrow s$	(D) $a \rightarrow r$; $b \rightarrow s$; $c \rightarrow p$; $d \rightarrow q$

CPE215

43. Which of the following exist (s) in gaseous state?
 (A) F_2 (B) F_2 and Cl_2 (C) Cl_2 and Br_2 (D) F_2 , Cl_2 and I_2
CPE216
44. Which is a super Halogen?
 (A) F (B) Cl (C) Br (D) I
CPE219
45. Which is a powerful oxidising agent?
 (A) F_2O_2 (B) Cl_2O_6 (C) BrO_3 (D) I_2O_5
CPE220
46. $Cl=O$ bond is NOT present in:
 (A) Chloric acid (B) Hypochlorous acid (C) Chlorous acid (D) Perchloric acid
CPE244
47. Chlorine is manufactured by:
 (A) Birkeland and Eyde process (B) Deacon process
 (C) Bosch process (D) Solvay process
CPE222
48. Chlorine gas is not used in:
 (A) Bleaching agent (B) Extraction of gold
 (C) Refining of sugar (D) Sterilising drinking water
CPE224
49. The correct order of increasing oxidation number of Cl is :
 (A) $HOCl < HOClO < HOClO_2 < HOClO_3$ (B) $HOCl < HOClO_2 < HOClO < HOClO_3$
 (C) $HOClO_3 < HOClO_2 < HOClO < HOCl$ (D) $HOClO_3 < HOCl < HOClO_2 < HOClO$
CPE245
50. An inorganic white crystalline compound (P) has a rock salt structure. (P) on reaction with conc. H_2SO_4 and MnO_2 , evolves a pungent smelling, greenish-yellow gas (Q). Compound (P) gives white ppt. of (R) with $AgNO_3$ solution. Compounds (P), (Q) and (R) will be respectively :
 (A) NaCl, Cl_2 , AgCl (B) NaBr, Br_2 , NaBr (C) NaCl, Cl_2 , Ag_2SO_4 (D) Na_2CO_3 , CO_2 , Ag_2CO_3
CPE254
51. The CORRECT order of bond energy is :
 (A) $F_2 > Cl_2 > Br_2 > I_2$ (B) $Cl_2 < F_2 < Br_2 < I_2$ (C) $Cl_2 > Br_2 > F_2 > I_2$ (D) $I_2 > Br_2 > Cl_2 > F_2$
CPE217
52. The hybridisation of I in cationic and anionic part of I_2Cl_6 are :
 (A) sp^2 , sp^3d (B) sp^3 , sp^3 (C) sp^2 , sp^3d^2 (D) sp^3 , sp^3d^2
CPE252

Noble Gas Family

53. Which noble gas is not present in atmosphere?
 (A) He (B) Ne (C) Xe (D) Rn
CPE264

54. The most abundant noble gas is :
 (A) He (B) Ne (C) Ar (D) Kr CPE265
55. Group 18 elements are called noble gas because :
 (A) They react with a few elements only under certain conditions
 (B) They don't react with any element at all
 (C) They are similar to noble metals (Au, Ag, Pt)
 (D) They are unstable CPE266
56. The INCORRECT order is :
 (A) $\text{He} < \text{Ne} < \text{Ar} < \text{Kr} < \text{Xe}$ (Atomic Radius)
 (B) $\text{He} > \text{Ne} > \text{Ar} > \text{Kr} > \text{Xe}$ (Ionisation enthalpy)
 (C) $\text{He} < \text{Ne} < \text{Ar} < \text{Kr} < \text{Xe}$ (Density)
 (D) $\text{He} < \text{Ne} < \text{Ar} < \text{Kr} < \text{Xe}$ (Electron gain enthalpy) CPE267
57. The melting and boiling point of noble gases are low because : -
 (A) Their size is very small
 (B) They don't have free electrons
 (C) The only type of interatomic interaction is weak dispersion forces (London force)
 (D) They have no intermolecular attraction CPE268
58. Which one of the following is not formed during hydrolysis of XeF_6 ?
 (A) XeOF_4 (B) XeOF_3 (C) XeO_3 (D) XeO_2F_2 CPE274

Miscellaneous

59. Which one of the following compounds gives methane on treatment with water :-
 (A) Al_4C_3 (B) CaC_2 (C) Mg_2C_3 (D) SiC CPB166
60. An element $\text{E} = \{\text{B}, \text{C}, \text{Si}, \text{Ge}\}$, predict E on the basis of given conditions:
 I : Powdered E reacts with O_2 to form an oxide.
 II : Oxide formed in I reacts with NaOH
 III : E reacts with steam on red heat forming two gaseous products, which can be used as a fuel.
 E can be :
 (A) B (B) C (C) Si (D) Ge CPB193
61. Which is not the property of diamond?
 (A) It is insoluble in all solvents
 (B) It is oxidised with a mixture of $\text{K}_2\text{Cr}_2\text{O}_7$ and H_2SO_4 at 200°C
 (C) Being hardest, it is used as an abrasive for sharpening hard tools.
 (D) $\Delta_f H^\ominus$ value of diamond is 1.90 kJ mol^{-1} . CPB194

62. Which of the following statement is INCORRECT ?

- (A) Hybridization state of 'Be' in BeH_2 (solid) is sp^3 .
 (B) BeH_2 (solid) is a planar molecule
 (C) BeH_2 (solid) is an electron deficient molecule.
 (D) In BeH_2 (solid) $3c-2e^-$ bond present

CPB131

63. Match the column:

Column I

- (A) B_2H_6
 (B) Be_2H_4
 (C) Be_2Cl_4
 (D) $\text{Al}_2(\text{CH}_3)_6$

Column II

- (P) $(3c-4e^-)$ bond
 (Q) $(3c-2e^-)$ bond
 (R) Central atom is sp^3 hybridised
 (S) central atom is sp^2 hybridised.

- (A) $A \rightarrow P, R; B \rightarrow Q, S; C \rightarrow P, S; D \rightarrow Q, R$
 (B) $A \rightarrow Q, R; B \rightarrow P, S; C \rightarrow P, Q; D \rightarrow P, R$
 (C) $A \rightarrow Q, R; B \rightarrow Q, S; C \rightarrow P, S; D \rightarrow P, R$
 (D) $A \rightarrow S, R; B \rightarrow R, S; C \rightarrow P, S; D \rightarrow P, R$

CPB135

64. $2\text{H}_2\text{O}_2(\text{aq}) \rightarrow 2\text{H}_2\text{O}(\text{l}) + \text{O}_2(\text{g})$

In the above reaction, H_2O_2 undergoes :

- (A) Oxidation (B) Reduction (C) Disproportionation (D) None of these

CPE170

65. The correct order of acidic strength is :

- (A) $\text{Cl}_2\text{O}_7 > \text{SO}_3 > \text{P}_4\text{O}_{10}$ (B) $\text{CO}_2 > \text{N}_2\text{O}_5 > \text{SO}_3$
 (C) $\text{Na}_2\text{O} > \text{MgO} > \text{Al}_2\text{O}_3$ (D) $\text{K}_2\text{O} > \text{CaO} > \text{MgO}$

CPE173

66. Which one of the following property is not correct for Ozone ?

- (A) It oxidises lead sulphide (B) It oxidises potassium iodide
 (C) It oxidises mercury (D) It cannot act as bleaching agent in dry state.

CPE174

67. Match the column-I and column-II :

Column - I

- (a) Ozone gas
 (b) Ozone Liquid
 (c) Ozone solid
 (A) $a \rightarrow q; b \rightarrow r; c \rightarrow p$
 (C) $a \rightarrow p; b \rightarrow q; c \rightarrow r$

Column - II

- (p) Violet – black
 (q) Pale blue
 (r) Dark – blue
 (B) $a \rightarrow r; b \rightarrow p; c \rightarrow q$
 (D) $a \rightarrow r; b \rightarrow q; c \rightarrow p$

CPE176

68. Roasting of sulphides gives the gas X as a by-product. This is 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 reducing agent and its acid has never been isolated. The gas X is :

- (A) SO_3 (B) H_2S (C) SO_2 (D) CO_2

CPE194

69. On reaction of SO_2 with acidic KMnO_4 solution, which is correctly observed?
 (A) Colour of KMnO_4 is disappeared (B) SO_2 is oxidised to SO_3
 (C) MnO_4^- is reduced to MnO_2 (D) All of the above
 CPE195
70. Salt cake is :
 (A) Na_2SO_4 (B) NaCl (C) NaHSO_4 (D) $\text{NaHSO}_4 + \text{HCl}$
 CPE242
71. $2\text{KMnO}_4 + 16\text{HCl} \longrightarrow \text{X} + \text{KCl} + 8\text{H}_2\text{O} + 5\text{Cl}_2$ The oxidation state of Mn in 'X' is:
 (A) +1 (B) +2 (C) +4 (D) +7
 CPE243
72. Deacon's process of manufacture of chlorine is represented by the following equation?
 (A) $\text{MnO}_2 + \text{HCl} \rightarrow \text{MnCl}_2 + \text{Cl}_2 + \text{H}_2\text{O}$
 (B) $\text{HCl} + \text{O}_2 \xrightarrow[(723\text{K})]{\text{CuCl}_2} \text{Cl}_2 + \text{H}_2\text{O}$
 (C) $\text{NaCl} + \text{MnO}_2 + \text{H}_2\text{SO}_4 \rightarrow \text{Cl}_2 + \text{MnCl}_2 + \text{NaHSO}_4 + \text{H}_2\text{O}$
 (D) $\text{KMnO}_4 + \text{HCl} \rightarrow \text{KCl} + \text{MnCl}_2 + \text{H}_2\text{O} + \text{Cl}_2$
 CPE225

MULTIPLE CORRECT TYPE QUESTIONS

Boron Family

73. Which of following are correct.
 (A) B_2H_6 is non-planar.
 (B) B_2H_6 undergo symmetrical cleavage with PF_3 , CO and $(\text{C}_2\text{H}_5)_3\text{N}$
 (C) B_2H_6 undergo unsymmetrical cleavage with NH_3 , CH_3NH_2 , $(\text{CH}_3)_2\text{NH}$.
 (D) $\text{BeH}_2(\text{s})$, Ga_2Me_6 , Al_2Me_6 have two type of bonds (2C–2e bond as well as 3C–2e bond)
 CPB195
74. Correct order of Atomic radii is/are:
 (A) $\text{Al} > \text{Ga}$ (B) $\text{In} > \text{Ga}$ (C) $\text{Tl} > \text{In}$ (D) $\text{B} > \text{Ga}$
 CPB124
75. Which of the following are INCORRECT order of ionization enthalpy?
 (A) $\text{B} > \text{Al} > \text{Ga} > \text{In} > \text{Tl}$ (B) $\text{B} > \text{Tl} > \text{Ga} > \text{Al} > \text{In}$
 (C) $\text{B} > \text{Al} > \text{Ga} > \text{Tl} > \text{In}$ (D) $\text{B} > \text{Tl} > \text{Al} > \text{Ga} > \text{In}$
 CPB125
76. Which of the following molecule(s) is/are having $p\pi-p\pi$ back bonding?
 (A) BF_3 (B) BCl_3 (C) $\text{B}_3\text{N}_3\text{H}_6$ (D) None of these
 CPB196
77. Which of following molecules acts as good oxidizing agent?
 (A) NaBiO_3 (B) PbO_2 (C) TiCl_3 (D) PbCl_2
 CPB105

Carbon family

78. Select the correct orders :
 (A) $C > Si > Ge > Sn > Pb$ (melting point) (B) $C > Si > Ge > Pb > Sn$ (melting point)
 (C) $C > Si > Ge > Sn > Pb$ (Boiling point) (D) $C < Si < Ge < Sn < Pb$ (Metallic character)
CPB151
79. Which of the following is/are incorrect?
 (A) Purest form of allotrope of carbon is diamond
 (B) Zeolite is an example of silicate
 (C) Graphite is less thermodynamically stable than diamond
 (D) Total 32 polygons are present in C_{60} (Fullerene)
CPB152
80. Select the correct statement (s)
 (A) CH_3SiCl_3 undergoes hydrolysis followed by inter molecular elimination of water to form a complex cross - linked polymer (i.e silicone)
 (B) Silicone fluids are thermally stable.
 (C) In sheet silicate, three oxygen atoms of each tetrahedral are shared with adjacent SiO_4^{4-} tetrahedrals.
 (D) Silica is attacked by HF and NaOH.
CPB197
81. Which of the following statement(s) is /are true about compound 'P' and 'Q' in the following reaction:

$$Pb + \text{dil. } HNO_3 \xrightarrow{\Delta} P + Q\uparrow + H_2O$$

 (A) Compound 'Q' is a paramagnetic colourless gas.
 (B) Compound 'P' gives brown colour gas on heating.
 (C) Compound 'Q' is also obtained by heating of copper with dil. HNO_3 .
 (D) Compound 'P' is PbO_2 .
CPB173
82. Which of the following statement is/are correct for $CCl_3^\ominus$ and CCl_2 ?
 (A) Back bonding in both cases from Cl to C-atom
 (B) Back bonding in both cases from C to Cl-atom
 (C) Back bonding in $CCl_3^\ominus$ is from C to Cl but reverse in CCl_2 .
 (D) Direction of back bonding is just opposite in two cases.
CPB107

Nitrogen Family

83. When PCl_3 undergoes in hydrolysis then X oxyacid of phosphorus is formed then Select the correct statement about X :
 (A) Two P – OH bond (B) One P – H bond
 (C) One P = O bond (D) Three P – OH bond
CPE151
84. Which of the following statement are correct for P_4O_{10} :
 (A) No. of P – O – P Bond are 6 (B) No. of P – O Bond are 12
 (C) No. of P = O Bond are 4 (D) No. of P – O Bond are (10)
CPE153

Oxygen Family

85. Which of the following statement (s) is/are correct ?
 (A) Lone pairs at central atom in H_2O and H_2S are present in pure p – orbital.
 (B) H_2O is a better reducing agent than H_2Se
 (C) H_2S is thermally more stable H_2Se .
 (D) H_2Se is a weaker acid than H_2Te . CPE177
86. Which of the following are incorrect?
 (A) Both S_8 and S_6 molecules have crown shape structure.
 (B) Magnetic property of S_2 molecule is same as $\text{O}_2^{2\ominus}$ ion.
 (C) Rhombic sulphur is insoluble in water but soluble in CS_2 .
 (D) Both α and β sulphur have crown shape structure. CPE208
87. The acid having two directly connected sulphur atoms not present :
 (A) $\text{H}_2\text{S}_2\text{O}_7$ (B) $\text{H}_2\text{S}_2\text{O}_8$ (C) $\text{H}_2\text{S}_2\text{O}_6$ (D) H_2SO_5 CPE209
88. Which among the following is/are peroxo acid(s) ?
 (A) $\text{H}_2\text{S}_2\text{O}_3$ (B) H_2SO_5 (C) $\text{H}_2\text{S}_2\text{O}_7$ (D) $\text{H}_2\text{S}_2\text{O}_8$ CPE210

Halogen Family

89. Select correct statement(s) :
 (A) $\text{HF} > \text{HCl} > \text{HBr} > \text{HI}$ (Thermal stability) (B) $\text{HF} < \text{HCl} < \text{HBr} < \text{HI}$ (Reducing nature)
 (C) $\text{HF} > \text{HCl} > \text{HBr} > \text{HI}$ (Acidic character) (D) $\text{HF} > \text{HI} > \text{HBr} > \text{HCl}$ (Boiling point) CPE228

Miscellaneous

90. Which of the following is CORRECT order of stability?
 (A) $\text{Pb}^{2\oplus} > \text{Pb}^{4\oplus}$ (B) $\text{Bi}^{3\oplus} > \text{Bi}^{5\oplus}$ (C) $\text{Tl}^{\oplus} < \text{Tl}^{3\oplus}$ (D) $\text{Sn}^{2\oplus} > \text{Sn}^{4\oplus}$ CPB104
91. Which of the following molecule has incomplete octet?
 (A) B_2H_6 (B) Al_2Cl_6 (C) Be_2Cl_4 (D) Be_2H_4 (vapor) CPB139
92. Which of following statements are incorrect?
 (A) SnO is a basic oxides while SnO_2 is amphoteric oxide.
 (B) Both CO and CO_2 are acidic oxides.
 (C) Both KO_2 and BaO_2 are super oxides.
 (D) PbO and ZnO can react with both acids and bases. CPE178
93. Which of the following salts will evolve halogen on treatment with conc. H_2SO_4 ?
 (A) NaCl (B) KI (C) NaBr (D) None of these CPE211

EXERCISE - S

Boron Family

1. Number of lone pair present in Al_2Cl_6 .

CPB140

Carbon Family

2. Total number of compounds having 3-D network like structure.
Diamond, CO_2 , SiO_2 , SiC , graphite

CPB163

3. Number of corner/oxygen atoms shared per tetrahedron in 3D silicates are 'x' and in pyroxene silicates are 'y' then value of $\frac{2(x+y)}{x}$ is :

CPB164

4. On hydrolysis of CaC_2 , it gives a gas which on trimerization gives compound 'y'. What is the molar mass of Y ?

CPB176

5. If oxidation state of 'Pb' is 'x' in PbO_2 and oxidation state of 'O' is 'y' in H_2O_2 and oxidation state of 'N' is 'z' in $\text{Pb}(\text{NO}_3)_2$, then find out the value of 'z-x-|y|'.

CPB177

6. Consider a prototypical fullerene, C_{60} .
Let, a = Number of 5-membered rings ;
b = Number of 6-membered rings
c = Number of π -bonds in C_{60}
Find the value of $(3a - 2b + c)$

CPB198

7. In cyclic silicates the number of corners shared per SiO_4^{4-} unit is :

CPB162

8. Stable oxidation state of 'Pb' is +x, 'Bi' is +y and 'Tl' is +z, then value of 'x + y + z' is?

CPB108

Nitrogen Family

9. The total number of lone pairs in P_4O_6 molecule is :

CPE155

10. Total number of Non-ionisable Hydrogen atom in H_3PO_3 .

CPE157

11. Basicity of $\text{H}_4\text{P}_2\text{O}_7$.

CPE158

12. Total number of P—H bonds in cyclotrimetaphosphoric acid.

CPE159

13. The sum of $p\pi - p\pi$ & $p\pi - d\pi$ bonds in sulphonyl chloride. CPE160

14. Total number of sp^3 hybridised atom in P_4O_{10} molecule. CPE162

15. How many of the following is correct order of specified property.

(a)	$N > P > As > Sb > Bi$	(First ionisation enthalpy)
(b)	$N > P > As > Sb$	(Electronegativity)
(c)	$N-N < P-P < As-As$	(Single bond length)
(d)	$As^{3+} > Sb^{3+} > Bi^{3+}$	(Stability of +3 oxidation state)
(e)	White > Red > Black	(Reactivity of allotropes of phosphorus)
(f)	$H_3PO_2 < H_3PO_3 < H_3PO_4$	(Proticity of acids)
(g)	$H_3PO_2 < H_3PO_3 < H_3PO_4$	(Reducing power of acids)

CPE290

Oxygen Family

16. Some statements are given below :

S_1 : Density of selenium is more than sulphur.

S_2 : $O^\ominus$ has greater ionization energy than $S^\ominus$.

S_3 : Oxygen has the highest electron affinity among the chalcogens.

S_4 : Electron gain enthalpy decreases down the group in group - 16 as the size increases.

If the number of correct statements are 'x' then find the value of $(x - 2)^2$.

CPE181

17. Some statements are given. If number of correct statements are P. and number of incorrect statements are Q then find the value of $\left(\frac{P}{Q} + P^2\right)$:

S_1 : Ozone is toxic but not more than KCN.

S_2 : Ozone has different colours in all three physical state.

S_3 : Turpentine oil can absorb ozone.

S_4 : Ozone layer protects earth from harmful ultraviolet rays coming from sun.

S_5 : Bond order of 'O-O' bond is not same in O_2 and O_3 .

CPE182

18. Total number of non-bonding electron pairs in S_8 (crown shape) molecule. CPE186

19. The sum of $p\pi - p\pi$ and $p\pi - d\pi$ bonds in H_2SO_4 molecule is : CPE212

Halogen Family

20. How many of following interhalogen compounds do not exist ?

IF, ICl_3 , $IClBr_3$, IBr_3 , BrI_5 , $BrCl_3$, FCl_3 , ClF , IF_7

CPE260

21. Among the following :

ClF , ICl , IBr , ClF_3 , IF_3 , BrF_3 , BrF_5 , IF_7

'x' are gases and 'y' are solids. The sum $x + y$ will be :

CPE261

22. Total number of lone pair on central atom of ClF_3 .

CPE262

23. Total number of $p\pi-p\pi$ bonds in HClO_4 .

CPE263

Noble Gas Family

24. XeF_4 reacts with PF_5 as follows : $\text{XeF}_4 + \text{PF}_5 \longrightarrow [\text{XeF}_3]^+ [\text{PF}_6]^-$. If total numbers of 90° angles in reactants = x and if total number of 90° angles in products = y, considering all effects of VSEPR theory, then calculate the value of (y - x).

CPE288

Miscellaneous

25. In how many of the following species back bonding is possible?

PH_3 , BF_3 , BCl_3 , PF_3 , $\text{BF}_4^\ominus$, $\text{N}(\text{SH}_3)_3$, $\text{N}(\text{CH}_3)_3$

CPB109

26. Central atom may exhibit sp^3 hybridisation in how many of the following species:

(a) CO_2	(b) Graphite	(c) Diamond	(d) CO
(e) H_3BO_3 (aq)	(f) Zeolites (Si-central)	(g) Silicones (Si)	(h) Chlorosilane (Si)
(i) Borax (Boron)	(j) Al_2Cl_6	(k) B_2H_6	(l) SiO_2 (solid)
(m) H_2CO_3	(n) COCl_2	(o) CH_4	(p) CCl_4

CPB199

27. $\text{B} + \text{HNO}_3 \longrightarrow (\text{A}) + (\text{B})$

conc. white solid brown gas

How many of the following statements are correct regarding products (A) & (B) ?

- (1) (A) can be prepared by reacting borax with dilute acids.
- (2) (A) is a weak monobasic lewis acid.
- (3) (A) behaves like a strong electrolyte when dissolved in water.
- (4) (A) can be prepared by reacting colemanite, SO_2 & H_2O .
- (5) (B) is paramagnetic in nature.
- (6) (B) is a mixed anhydride.
- (7) (B) does not forms a dimer
- (8) (B) reacts with $\text{NaOH}(\text{aq})$ undergoing disproportionation.
- (9) Bond angle about central atom is greater in (A) than in (B). (Assume atom forming maximum number of bonds as central atom)

CPB200

28. How many compounds show amphoteric nature amongst following

(a) B_2O_3	(b) Tl_2O_3	(c) $\text{Al}(\text{OH})_3$	(d) $\text{Ga}(\text{OH})_3$
(e) Al_2O_3	(f) Ga_2O_3	(g) NaAlO_2	(h) $\text{Sr}(\text{OH})_2$
(i) Cr_2O_3			

CPB201

29. No of compounds producing gas on hydrolysis (with H_2O) is
 (a) Al_4C_3 (b) BaC_2 (c) Mg_2C_3 (d) SiC
 (e) B_2H_6 (f) Fe_3C CPE329
30. The silicate anion in the mineral kinoite is a chain of three SiO_4 tetrahedron that share corners with adjacent tetrahedra. The mineral also contains Ca^{2+} and Cu^{2+} and As^{2+} ion & water molecule in a 1 : 1 : 1 ratio. The formula of mineral is $\text{Ca}_2\text{Cu}_2\text{Si}_3\text{O}_n \cdot 2\text{H}_2\text{O}$. Give value of 'n' CPB202
31. Among the following the number of compounds that can react with PCl_5 to give POCl_3 is $\text{C}_2\text{H}_5\text{OH}$, CH_3COOH , SO_2 , H_2O , H_2SO_4 , P_4O_{10} CPE156
32. How many of the following oxides are acidic in nature ?
 SO_2 , Cl_2O_7 , Na_2O , CaO , Mn_2O_7 , CrO_3 , CO_2 , N_2O_5 , BaO CPE180
33. From the given reaction :

$$2\text{KClO}_3 \xrightarrow[\text{MnO}_2]{\text{Heat}} \text{X} + \text{Y}$$
 Bond order of gaseous molecule having paramagnetic nature. CPE187
34. How many of the following statements are correct
 S_1 : SO_2 reduces $\text{Cr}_2\text{O}_7^{2-}$ to Cr^{3+} .
 S_2 : Yellow colour solution of Fe^{3+} changes to green colour in the presence of SO_2 .
 S_3 : SO_2 on reaction with water gives an acid having 2 π -bonds.
 S_4 : solubility of H_2S in H_2O increases with decreasing temperatures. CPE213
35. Hydrolysis of NCl_3 give product x & y respectively than total number of σ bond in x + y. CPE234
36. Sum of electronegativity value of Fluorine & Chlorine. CPE238
37. Complete hydrolysis product of 1 mole each of following will need how many total number of moles of NaOH for complete neutralisation?
 SOCl_2 , SO_2Cl_2 , PCl_3 , PCl_5 , NCl_3 CPE291

EXERCISE - JEE (Main) PYQ

1. Choose the correct stability order of group 13 elements in their +1 oxidation state.
 (1) $\text{Al} < \text{Ga} < \text{In} < \text{Tl}$ (2) $\text{Tl} < \text{In} < \text{Ga} < \text{Al}$ (3) $\text{Al} < \text{Ga} < \text{Tl} < \text{In}$ (4) $\text{Al} < \text{Tl} < \text{Ga} < \text{In}$
 [JEE (Main) 2022] CPB049
2. The geometry around boron in the product 'B' formed from the following reaction is
 $\text{BF}_3 + \text{NaH} \xrightarrow{450\text{K}} \text{A} + \text{NaF}$
 $\text{A} + \text{NMe}_3 \rightarrow \text{B}$
 (1) trigonal planar (2) tetrahedral (3) pyramidal (4) square planar
 [JEE (Main) 2022] CPB050
3. Identify the correct statement for B_2H_6 from those given below.
 (A) In B_2H_6 , all B-H bonds are equivalent.
 (B) In B_2H_6 there are four 3-centre-2-electron bonds.
 (C) B_2H_6 is a Lewis acid.
 (D) B_2H_6 can be synthesized from both BF_3 and NaBH_4 .
 (E) B_2H_6 is a planar molecule.
 Choose the most appropriate answer from the options given below:
 (1) (A) and (E) only (2) (B), (C) and (E) only
 (3) (C) and (D) only (4) (C) and (E) only
 [JEE (Main) 2022] CPB205
4. Match List-I with List-II
List-I
(Si-Compounds)
 (A) $(\text{CH}_3)_4\text{Si}$
 (B) $(\text{CH}_3)\text{Si}(\text{OH})_3$
 (C) $(\text{CH}_3)_2\text{Si}(\text{OH})_2$
 (D) $(\text{CH}_3)_3\text{Si}(\text{OH})$
List-II
(Si-Polymeric/other products)
 (I) Chain silicone
 (II) Dimeric silicone
 (III) Silane
 (IV) 2D - Silicone
 Choose the correct answer from the options given below:
 (1) (A)-(III), (B)-(II), (C)-(I), (D)-(IV) (2) (A)-(IV), (B)-(I), (C)-(II), (D)-(III)
 (3) (A)-(II), (B)-(I), (C)-(IV), (D)-(III) (4) (A)-(III), (B)-(IV), (C)-(I), (D)-(II)
 [JEE (Main) 2022] CPB206
5. Borazine, also known as inorganic benzene, can be prepared by the reaction of 3-equivalents of "X" with 6-equivalents of "Y". "X" and "Y", respectively are :
 (1) $\text{B}(\text{OH})_3$ and NH_3 (2) B_2H_6 and NH_3
 (3) B_2H_6 and HN_3 (4) NH_3 and B_2O_3
 [JEE (Main) 2022] CPB207
6. Given below are two statements : one is labelled as Assertion A and the other is labelled as Reason R.
Assertion A : Boric acid is a weak acid
Reason R : Boric acid is not able to release H^+ ion on its own. It receives OH^- ion from water and releases H^+ ion.
 In the light of the above statements, choose the most appropriate answer from the options given below.
 (1) Both A and R are correct and R is the correct explanation of A
 (2) Both A and R are correct but R is NOT the correct explanation of A
 (3) A is correct but R is not correct
 (4) A is not correct but R is correct
 [JEE (Main) 2022] CPB208

7. Given below are two statements.

Statement I : Stannane is an example of a molecular hydride.

Statement II : Stannane is a planar molecule.

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

[JEE (Main) 2022]

- (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.

CPB209

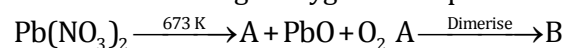
8. When borax is heated with CoO on a platinum loop, blue coloured bead formed is largely due to :

[JEE (Main) 2022]

- (1) B_2O_3 (2) $Co(BO_2)_2$ (3) CoB_4O_7 (4) $Co[B_4O_5(OH)_4]$

CPB210

9. The number of bridged oxygen atoms present in compound B formed from the following reactions is



[JEE (Main) 2022]

- (1) 0 (2) 1 (3) 2 (4) 3

CPE306

10. The correct order of melting points of hydrides of group 16 elements is :

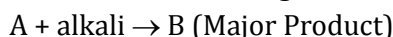
[JEE (Main) 2022]

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

CPE307

11. Consider the following reaction:

[JEE (Main) 2022]



If B is an oxoacid of phosphorus with no P-H bond, then A is :

- (1) White P_4 (2) Red P_4 (3) P_2O_3 (4) H_3PO_3

CPE308

12. Match List-I with List-II.

[JEE (Main) 2022]

List-I (Oxide)		List-II (Nature)	
(A)	Cl_2O_7	(I)	Amphoteric
(B)	Na_2O	(II)	Basic
(C)	Al_2O_3	(III)	Neutral
(D)	N_2O	(IV)	Acidic

Choose the **correct** answer from the options given below :

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

CPE309

13. Among the given oxides of nitrogen; N_2O , N_2O_3 , N_2O_4 and N_2O_5 , the number of compound/(s) having N-N bond is :

[JEE (Main) 2022]

- (1) 1 (2) 2 (3) 3 (4) 4

CPE310

14. Which oxoacid of phosphorous has the highest number of oxygen atoms present in its chemical formula?

[JEE (Main) 2022]

- (1) Pyrophosphorous acid (2) Hypophosphoric acid
 (3) Phosphoric acid (4) Pyrophosphoric acid

CPE311

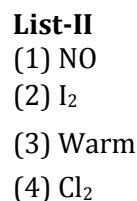
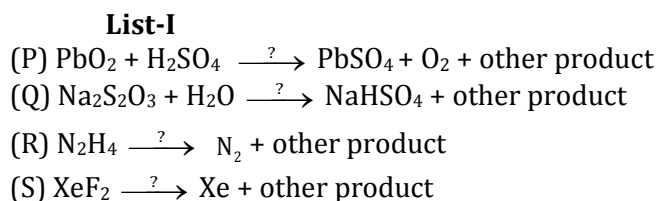
15. Concentrated HNO_3 reacts with Iodine to give [JEE (Main) 2022]
 (1) HI , NO_2 and H_2O (2) HIO_2 , N_2O and H_2O
 (3) HIO_3 , NO_2 and H_2O (4) HIO_4 , N_2O and H_2O CPE312
16. Consider the following sulphure based oxoacids.
 H_2SO_3 , H_2SO_4 , $\text{H}_2\text{S}_2\text{O}_8$ and $\text{H}_2\text{S}_2\text{O}_7$.
 Amongst these oxoacids, the number of those with peroxo(O-O) bond is _____. [JEE (Main) 2022]
 CPE313
17. Boric acid in solid, whereas BF_3 is gas at room temperature because of [JEE (Main) 2023]
 (1) Strong ionic bond in Boric acid
 (2) Strong Vander Waal's interaction in Boric acid
 (3) Strong hydrogen bond in Boric acid
 (4) Strong covalent bond in BF_3 CPB211
18. The Lewis acid character of boron tri halides follows the order : [JEE (Main) 2023]
 (1) $\text{BBr}_3 > \text{BI}_3 > \text{BCl}_3 > \text{BF}_3$ (2) $\text{BCl}_3 > \text{BF}_3 > \text{BBr}_3 > \text{BI}_3$
 (3) $\text{BF}_3 > \text{BCl}_3 > \text{BBr}_3 > \text{BI}_3$ (4) $\text{BI}_3 > \text{BBr}_3 > \text{BCl}_3 > \text{BF}_3$ CPB212
19. The correct order of bond enthalpy (kJ mol^{-1}) is : [JEE (Main) 2023]
 (1) $\text{Si} - \text{Si} > \text{C} - \text{C} > \text{Sn} - \text{Sn} > \text{Ge} - \text{Ge}$ (2) $\text{Si} - \text{Si} > \text{C} - \text{C} > \text{Ge} - \text{Ge} > \text{Sn} - \text{Sn}$
 (3) $\text{C} - \text{C} > \text{Si} - \text{Si} > \text{Sn} - \text{Sn} > \text{Ge} - \text{Ge}$ (4) $\text{C} - \text{C} > \text{Si} - \text{Si} > \text{Ge} - \text{Ge} > \text{Sn} - \text{Sn}$ CPB213
20. Given below are two statements :
Statement I : Boron is extremely hard indicating its high lattice energy
Statement II : Boron has highest melting and boiling point compared to its other group members.
 In the light of the above statements, choose the most appropriate answer from the options given below [JEE (Main) 2023]
 (1) Statement I is incorrect but Statement II is correct
 (2) Both Statement I and Statement II is correct
 (3) Statement I is correct but Statement II is incorrect
 (4) Both Statement I and Statement II is incorrect CPB214
21. For a good quality cement, the ratio of silica to alumina is found to be [JEE (Main) 2023]
 (1) 3 (2) 4.5 (3) 2 (4) 1.5 CPB215
22. Which of the Phosphorus oxoacid can create silver mirror from AgNO_3 solution? [JEE (Main) 2023]
 (1) $(\text{HPO}_3)_n$ (2) $\text{H}_4\text{P}_2\text{O}_5$ (3) $\text{H}_4\text{P}_2\text{O}_6$ (4) $\text{H}_4\text{P}_2\text{O}_7$ CPE314
23. Sum of π -bonds present in peroxodisulphuric acid and pyrosulphuric acid is [JEE (Main) 2023]
 CPE315

- 24.** Given below are two statements:
Statement I: Chlorine can easily combine with oxygen to form 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.
[JEE (Main) 2023]
- Both the statements I and II are true
 - Statement I is true but Statement II is false
 - Statement I is false but Statement II is true
 - Both the Statements I and II are false
- CPE316**
- 25.** The difference between electron gain enthalpies will be maximum between:
[JEE (Main) 2023]
- | | | | |
|--------------|---------------|---------------|--------------|
| (1) Ne and F | (2) Ne and Cl | (3) Ar and Cl | (4) Ar and F |
|--------------|---------------|---------------|--------------|
- CPE317**
- 26.** XeF₄ reacts with SbF₅ to form
 $[\text{XeF}_m]^{n+} [\text{SbF}_y]^{z-}$
 $m + n + y + z = \underline{\hspace{2cm}}$
[JEE (Main) 2023]
- CPE318**
- 27.** The difference in the oxidation state of Xe between the oxidised product of Xe formed on complete hydrolysis of XeF₄ and XeF₄ is _____
[JEE (Main) 2023]
- CPE319**
- 28.** The correct group of halide ions which can be oxidised by oxygen in acidic medium is
[JEE (Main) 2023]
- | | |
|---|---|
| (1) Br ⁻ only | (2) Cl ⁻ , Br ⁻ and I ⁻ only |
| (3) Br ⁻ and I ⁻ only | (4) I ⁻ only |
- CPE320**
- 29.** The number of P – O – P bonds in H₄P₂O₇, (HPO₃)₃ and P₄O₁₀ are respectively.
[JEE (Main) 2023]
- | | | | |
|-------------|-------------|-------------|-------------|
| (1) 1, 3, 6 | (2) 0, 3, 6 | (3) 0, 3, 4 | (4) 1, 2, 4 |
|-------------|-------------|-------------|-------------|
- CPE321**

EXERCISE - JEE (Advanced) PYQ

1. The unbalanced chemical reactions given in List-I show missing reagent or condition (?) which are provided in List-II. Match List-I with List-II and select the correct answer using the code given below the lists :

[JEE (Advanced) 2013]



Codes :

	P	Q	R	S
(A)	4	2	3	1
(B)	3	2	1	4
(C)	1	4	2	3
(D)	3	4	2	1

CPE080

Comprehension # 2 to 3

The reaction of Cl_2 gas with cold dilute and hot concentrated NaOH in water give sodium salt of two (different) oxoacids of chlorine P and Q respectively. The Cl_2 gas reacts with SO_2 gas, in presence of charcoal to give a product R. R reacts with white phosphorous to give a compound S. On hydrolysis, S gives as oxoacid of phosphorous T.

2. R, S and T, respectively are -

[JEE (Advanced) 2013]

- (A) SO_2Cl_2 , PCl_5 and H_3PO_4 (B) SO_2Cl_2 , PCl_3 and H_3PO_3
 (C) SOCl_2 , PCl_3 and H_3PO_2 (D) SOCl_2 , PCl_3 and H_3PO_3

CPE081

3. P and Q, respectively, are the sodium salts of -

[JEE (Advanced) 2013]

- (A) Hypochlorous and chloric acid (B) Hypochlorous and chlorous acid
 (C) Chloric and perchloric acids (D) Chloric and hypochlorous acids

CPE082

4. With respect to graphite and diamond, which of the statement(s) given below is (are) correct?

[JEE (Advanced) 2014]

- (A) Graphite is harder than diamond.
 (B) Graphite has higher electrical conductivity than diamond.
 (C) Graphite has higher thermal conductivity than diamond.
 (D) Graphite has higher C-C bond order than diamond.

CPB082

5. The correct statements(s) for orthoboric acid is/are :-

[JEE (Advanced) 2014]

- (A) It behaves as a weak acid in water due to self ionization
 (B) Acidity of its aqueous solution increases upon addition of ethylene glycol
 (C) It has a three dimensional structure due to hydrogen bonding.
 (D) It is a weak electrolyte in water

CPB083

6. Three moles of B_2H_6 are completely reacted with methanol. The number of moles of boron containing product formed is -

[JEE (Advanced) 2015]

CPB084

7. Under hydrolytic conditions, the compounds used for preparation of linear polymer and for chain termination, respectively, are:-
 (A) $(\text{CH}_3)_2\text{SiCl}_2$ and $\text{Si}(\text{CH}_3)_4$ (B) $(\text{CH}_3)_2\text{SiCl}_2$ and $(\text{CH}_3)_3\text{SiCl}$
 (C) $(\text{CH}_3)_2\text{SiCl}_2$ and CH_3SiCl_3 (D) SiCl_4 and $(\text{CH}_3)_3\text{SiCl}$
[JEE (Advanced) 2015]
CPB085
8. The incorrect statement(s) regarding, (i) HClO , (ii) HClO_2 , (iii) HClO_3 and (iv) HClO_4 , is(are)
 (A) The number of $\text{Cl} = \text{O}$ bonds in (ii) and (iii) together is three
 (B) The number of lone pairs of electrons on Cl in (ii) and (iii) together is three
 (C) The hybridization of Cl in (iv) is sp^3
 (D) Amongst (i) to (iv), the strongest acid is (i)
[JEE (Advanced) 2015]
CPE083
9. The crystalline form of borax has:-
 (A) Tetranuclear $[\text{B}_4\text{O}_5(\text{OH})_4]^{2-}$ unit
 (B) All boron atoms in the same plane
 (C) Equal number of sp^2 and sp^3 hybridized boron atoms
 (D) One terminal hydroxide per boron atom
[JEE (Advanced) 2016]
CPB086
10. Among the following, the correct statement(s) is/are :-
 (A) $\text{Al}(\text{CH}_3)_3$ has the three-centre two-electron bonds in its dimeric structure
 (B) AlCl_3 has the three-centre two-electron bonds in its dimeric structure
 (C) BH_3 has the three-centre two-electron bonds in its dimeric structure
 (D) The Lewis acidity of BCl_3 is greater than that of AlCl_3
[JEE (Advanced) 2017]
CPB087
11. A tin chloride **Q** undergoes the following reactions (not balanced) :-
 $\text{Q} + \text{Cl}^- \rightarrow \text{X}$
 $\text{Q} + \text{Me}_3\text{N} \rightarrow \text{Y}$
 $\text{Q} + \text{CuCl}_2 \rightarrow \text{Z} + \text{CuCl}$
X is a monoanion having pyramidal geometry. Both **Y** and **Z** are neutral compounds. Choose the correct option(s).
 (A) The central atoms in **X** is sp^3 hybridized
 (B) The oxidation state of the central atom in **Z** is +2
 (C) The central atom in **Z** has one lone pair of electrons
 (D) There is a coordinate bond in **Y**
[JEE (Advanced) 2019]
CPB088
12. At 143 K. the reaction of XeF_4 with O_2F_2 produces a xenon compound **Y**. The total number of lone pair(s) of electrons present on the whole molecule of **Y** is ____
[JEE (Advanced) 2019]
CPE085
13. The amount of water produced (in g) in the oxidation of 1 mole of rhombic sulphur by conc. HNO_3 to a compound with the highest oxidation state of sulphur is ____
 (Given data : Molar mass of water = 18 g mol^{-1})
[JEE (Advanced) 2019]
CPE086
14. Each of the following options contains a set of four molecules. Identify the option(s) where all four molecules possess permanent dipole moment at room temperature.
 (1) BeCl_2 , CO_2 , BCl_3 , CHCl_3 (2) SO_2 , $\text{C}_6\text{H}_5\text{Cl}$, H_2Se , BrF_5
 (3) BF_3 , O_3 , SF_6 , XeF_6 (4) NO_2 , NH_3 , POCl_3 , CH_3Cl
[JEE (Advanced) 2019]
CPE087

15. Among B_2H_6 , $B_3N_3H_6$, N_2O , N_2O_4 , $H_2S_2O_3$ and $H_2S_2O_8$, the total number of molecules containing covalent bond between two atoms of the same kind is -----
[JEE (Advanced) 2019] CPE088
16. A colourless aqueous solution contains nitrates of two metal, X and Y. When it was added to an aqueous solution of NaCl, a white precipitate was formed. This precipitate was found to be partly soluble in hot water to give residue P and a solution Q. The residue P was soluble in aqueous NH_3 and also in excess sodium thiosulphate. The hot solution Q gave a yellow precipitate with KI. The metals X & Y, respectively, are :-
[JEE (Advanced) 2020] CPB089
(A) Ag & Pb (B) Ag & Cd (C) Cd & Pb (D) Cd & Zn
17. The correct statement(s) related to oxoacids of phosphorous is(are) [JEE (Advanced) 2021] CPE322
(A) Upon heating, H_3PO_3 undergoes disproportionation reaction to produce H_3PO_4 and PH_3 .
(B) While H_3PO_3 can act as reducing agent, H_3PO_4 cannot.
(C) H_3PO_3 is a monobasic acid.
(D) The H atom of P-H bond in H_3PO_3 is not ionizable in water.
18. The compound(s) which react(s) with NH_3 to give boron nitride (BN) is(are) :- [JEE (Advanced) 2022] CPB090
(A) B (B) B_2H_6 (C) B_2O_3 (D) $HB F_4$
19. The reaction $Pb(NO_3)_2$ and NaCl in water produces a precipitate that dissolves upon the addition of HCl of appropriate concentration. The dissolution of the precipitate is due to the formation of [JEE (Advanced) 2022] CPB091
(A) $PbCl_2$ (B) $PbCl_4$ (C) $[PbCl_4]^{2-}$ (D) $[PbCl_6]^{2-}$
20. The treatment of galena with HNO_3 produces a gas that is [JEE (Advanced) 2022] CPE323
(A) paramagnetic (B) bent in geometry
(C) an acidic oxide (D) colorless
21. The reaction of $HClO_3$ with HCl gives a paramagnetic gas, which upon reaction with O_3 produces [JEE (Advanced) 2022] CPE324
(A) Cl_2O (B) ClO_2 (C) Cl_2O_6 (D) Cl_2O_7
22. Match the reactions (in the given stoichiometry of the reactants) in List-I with one of their products given in List-II and choose the correct option. [JEE (Advanced) 2023] CPE325
- | List-I | List-II |
|--|--|
| (P) $P_2O_3 + 3H_2O \rightarrow$ | (1) $P(O)(OCH_3)Cl_2$ |
| (Q) $P_4 + 3NaOH + 3H_2O \rightarrow$ | (2) H_3PO_3 |
| (R) $PCl_5 + CH_3COOH \rightarrow$ | (3) PH_3 |
| (S) $H_3PO_2 + 2H_2O + 4AgNO_3 \rightarrow$ | (4) $POCl_3$ |
| | (5) H_3PO_4 |
| (A) $P \rightarrow 2; Q \rightarrow 3; R \rightarrow 1; S \rightarrow 5$ | (B) $P \rightarrow 3; Q \rightarrow 5; R \rightarrow 4; S \rightarrow 2$ |
| (C) $P \rightarrow 5; Q \rightarrow 2; R \rightarrow 1; S \rightarrow 3$ | (D) $P \rightarrow 2; Q \rightarrow 3; R \rightarrow 4; S \rightarrow 5$ |
23. Consider the following molecules : Br_3O_8 , F_2O , $H_2S_4O_6$, $H_2S_5O_6$, and C_3O_2 . Count the number of atoms existing in their zero oxidation state in each molecule. Their sum is ____.
[JEE (Advanced) 2023] CPE326

JEE (Main) Practice Paper

(This paper is for yourself practice and assessment the discussion of this paper is optional though you can see PDF solutions or video solutions or solutions in hardcopy whichever is provided.)

SECTION-A

- This section contains **TWENTY** questions.
- Each question has **FOUR** options (1), (2), (3) and (4). **ONLY ONE** of these four options is correct.
- For each question, darken the bubble corresponding to the correct option in the ORS.
- For each question, marks will be awarded in one of the following categories :

Full Marks : +4, if only the bubble corresponding to the correct option is darkened.

Zero Marks : 0, if none of the bubbles is darkened.

Negative Marks : -1 in all other cases

- An aqueous solution of borax is
(1) Neutral (2) Amphoteric (3) Basic (4) Acidic
CPB007
- Elements of group 14
(1) Exhibit oxidation state of +4 only (2) Exhibit oxidation state of +2 only
(3) Form $M^{2\ominus}$ and $M^{4\oplus}$ ions (4) Form $M^{2\oplus}$ and $M^{4\oplus}$ ions
CPB010
- Boric acid polymerizes due to –
(1) The presence of hydrogen bonds (2) Its acidic nature
(3) Its geometry (4) Its monobasic nature
CPB013
- In alums, each metal ion is surrounded by–
(1) Two water molecules (2) Four water molecules
(3) Six water molecules (4) Eight water molecules
CPB015
- Alumina is insoluble in water because
(1) It is a Ionic compound
(2) It has high lattice energy and low heat of hydration
(3) It has low lattice energy and high heat of hydration
(4) $Al^{3\oplus}$ and $O^{2\ominus}$ ions are excessively hydrated
CPB016
- BCl_3 does not exist as dimer but BH_3 exist 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 get fitted in between boron atoms
(4) None of the above
CPB018

7. Which of the following statement is false:
 (1) SiC has 3D-network like structure
 (2) GeO_2 is acidic in nature
 (3) Carbogen is used as antidote in CO_2 poisoning
 (4) PbO is more basic than PbO_2
CPB019
8. Which of the following statement is wrong?
 (1) Single N–N bond is weaker than the single P–P bond
 (2) N_2O_4 has two resonance structures
 (3) The stability of hydrides increases from NH_3 to BiH_3 in group 15 of the periodic table
 (4) Nitrogen cannot form $p\pi-d\pi$ bond
CPE001
9. An inorganic compound (A) made of two most occurring elements into the earth crust, having a polymeric tetrahedral network structure. With carbon, compound (A) produces a poisonous gas (B) which is the most stable diatomic molecule. Compounds (A) and (B) will be
 (1) $\text{SiO}_2, \text{CO}_2$ (2) SiO_2, CO (3) SiC, CO (4) SiO_2, N_2
CPB001
10. Carbogen has X% of CO_2 and is used as an antidote for poisoning of Y. Then, X and Y are
 (1) X = 95% and Y = lead poisoning (2) X = 5% and Y = CO poisoning
 (3) X = 30% and Y = CO_2 poisoning (4) X = 45% and Y = CO poisoning
CPB002
11. The number of S–S linkages in SO_3 , $\text{S}_2\text{O}_3^{2-}$, $\text{S}_2\text{O}_6^{2-}$ and $\text{S}_2\text{O}_8^{2-}$ respectively are :-
 (1) 1, 0, 1, 0 (2) 0, 1, 1, 0 (3) 1, 0, 0, 1 (4) 0, 1, 0, 1
CPE003
12. $\text{Ca} + \text{C}_2 \longrightarrow \text{CaC}_2 \xrightarrow{\text{N}_2} \text{A}$
 Compound (A) is used as a/an
 (1) fertilizer (2) dehydrating agent (3) oxidising agent (4) reducing agent
CPB005
13. Which of the following properties correctly represents?
 (1) $\text{He} < \text{Ne} < \text{Ar} < \text{Kr} < \text{Xe} < \text{Rn}$ Noble character increases
 (2) $\text{F} < \text{Cl} < \text{Br} < \text{I}$ Ionization enthalpy increases
 (3) $\text{O} > \text{S} > \text{Se} > \text{Te} > \text{Po}$ Electron gain enthalpy order
 (4) $\text{Cl} > \text{F} > \text{Br} > \text{I}$ Electron gain enthalpy order
CPE005
14. Hydrogen peroxide acts both as an oxidising and as a reducing agent depending upon the nature of the reacting species. In which of the following cases H_2O_2 acts as a reducing agent in acid medium?
 (1) MnO_4^- (2) SO_3^{2-} (3) KI (4) H_2S
CPE007
15. Which one has the highest boiling point?
 (1) Kr (2) Xe (3) He (4) Ne
CPE011

16. PH_3 (Phosphine) when passed in aqueous solution of CuSO_4 it produce -
 (1) Blue precipitate of $\text{Cu}(\text{OH})_2$ (2) dark blue solution of $[\text{Cu}(\text{PH}_3)_4]\text{SO}_4$
 (3) Black precipitate of Cu_3P_2 (4) Colorless solution of $[\text{Cu}(\text{H}_2\text{O})_4]^{2+}$
CPE012
17. A gas at low temperature does not react with the most of compounds. It is almost inert and is used to create inert atmosphere in bulbs. The combustion of this gas is exceptionally an endothermic reaction. Based on the given information, we can conclude that the gas is
 (1) oxygen (2) nitrogen
 (3) carbon mono-oxide (4) hydrogen
CPE014
18. When oxalic acid reacts with conc. H_2SO_4 , two gases produced are of neutral and acidic in nature respectively. Potassium hydroxide absorbs one of the two gases. The product formed during this absorption and the gas which gets absorbed are respectively
 (1) K_2CO_3 and CO_2 (2) KHCO_3 and CO_2 (3) K_2CO_3 and CO (4) KHCO_3 and CO
CPE016
19. When chlorine reacts with a gas X, an explosive inorganic compound Y is formed. Then X and Y will be
 (1) $\text{X} = \text{O}_2$ and $\text{Y} = \text{NCl}_3$ (2) $\text{X} = \text{NH}_3$ and $\text{Y} = \text{NCl}_3$
 (3) $\text{X} = \text{O}_2$ and $\text{Y} = \text{NH}_4\text{Cl}$ (4) $\text{X} = \text{NH}_3$ and $\text{Y} = \text{NH}_4\text{Cl}$
PE018
20. Three allotropes (A), (B) and (C) of phosphorous in the following change are respectively
- $$\begin{array}{ccc} \text{(A)} & \xrightarrow[1200 \text{ atmosphere}]{473 \text{ K}} & \text{(B)} \\ & \searrow & \\ & \xrightarrow[\text{CO}_2 \text{ atmosphere}]{573 \text{ K}} & \text{(C)} \end{array}$$
- (1) white, β -black, red (2) β -black, white, red
 (3) red, β -black, white (4) red, violet, β -black
CPE020

SECTION-B

- This section will have **TEN questions**. Candidate can choose to attempt any 5 questions out of these 10 questions. In case if candidate attempts more than 5 questions, first 5 attempted questions will be considered for marking.
 - The answer to each question is a **NUMERICAL VALUE**.
 - For each question, enter the correct numerical value (Answer should be rounded off to the nearest integer).
 - Answer to each question will be evaluated according to the following marking scheme:
 Full Marks : +4, if only correct answer is given.
 Zero Marks : 0, if no answer is given.
 Negative Marks :-1 for incorrect answer
1. If back bonding is not taking place in SiH_3NCS then how many maximum number of atoms can lie in one plane ?
CPB021
2. Find the number of molecules which are not having $3c - 4e^-$ bond from the following.
 $\text{Al}_2(\text{CH}_3)_6$, Si_2H_6 , B_2H_6 , C_2H_6 , Si_2Cl_6 , Al_2Cl_6
CPB022

3. Find number of species in which d – orbital of Cl is involve in back bonding.
BCl₃, OCl₂, CCl₂, CCl₃[⊖], CCl₄, HCl
CPB024
4. Maximum number of atoms in one plane in Al(CH₃)₃ is X. The value of X
CPB025
5. Find the number of chemical species, in which 2pπ – 3dπ back bonding is present
B(OH)₃, N(SiH₃)₃, P(CH₃)₃, N(GeH₃)₃, BeCl₂, O(SiH₃)₂, OCl₂, BCl₃
CPB026
6. When B₂H₆ is allowed to react with following lewis bases, then how many given lewis bases form adduct through symmetrical cleavage of B₂H₆ ?
NH₃, MeH₂, Pyridine, CO, T.H.F., PH₃, PF₃, Me₃N, Me₂NH
CPB027
7. When HCl reacts with finely powdered iron, it forms 'X' with liberation of H₂ gas.
What is the oxidation state of metal in X.
CPE021
8. The product formed in the reaction of SOCl₂ with White phosphorous is X then Number of σ Bond in X will be (X is P containing compound)
CPE026
9. $\text{NaOH} + \text{Cl}_2 \longrightarrow \text{NaCl} + \text{X} + \text{H}_2\text{O}$ The molecular weight of compound X is given as $\frac{y}{106.5}$ what is the value of y
CPE027
10. How many of the following compounds can be oxidised by O₃.
HCl, HBr, NaNO₂, S, Na₂SO₃
CPE029

JEE (Advanced) Practice Paper

(This paper is for yourself practice and assessment the discussion of this paper is optional though you can see PDF solutions or video solutions or solutions in hardcopy whichever is provided.)

SECTION-I

- This section contains **SIX** questions.
- Each question has FOUR options (A), (B), (C) and (D). ONLY ONE of these four options is correct.
- For each question, darken the bubble corresponding to the correct option in the ORS.
- For each question, marks will be awarded in one of the following categories:

Full Marks : +3, if only the bubble corresponding to the correct option is darkened.

Zero Marks : 0, if none of the bubbles is darkened.

Negative Marks : -1, in all other cases

1. Borax is actually made up of two tetrahedral and two triangular units joined together and should be written as : $\text{Na}_2 [\text{B}_4\text{O}_5(\text{OH})_4] 8\text{H}_2\text{O}$.

Consider the following statements about borax:

1. Each boron atom has four B-O bonds
2. Each boron atom has three B-O bonds
3. Two boron atoms have four B-O bonds while other two have three B-O bonds
4. Each boron atom has one '-OH' groups

Select correct statement(s) –

- (A) 1, 2 (B) 2, 3 (C) 3, 4 (D) 1, 3

CPB054

2. Which of the following species is not a pseudo halide?

- (A) $\text{CNO}^\ominus$ (B) $\text{RCOO}^\ominus$ (C) $\text{OCN}^\ominus$ (D) $\text{N}_3^\ominus$

CPE051

3. Which of the following statements is correct?

- (A) BCl_3 and AlCl_3 are both Lewis acids and BCl_3 is stronger Lewis acid than AlCl_3
 (B) BCl_3 and AlCl_3 both Lewis acids and AlCl_3 is stronger Lewis acid than BCl_3
 (C) BCl_3 and AlCl_3 are both equally strong Lewis acids
 (D) Both BCl_3 and AlCl_3 are not Lewis acids.

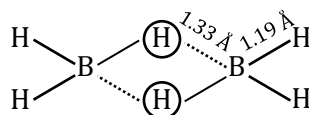
CPB051

4. In diborane –

- (A) 2 bridged hydrogen and four terminal hydrogen are present
 (B) 3 bridged and three terminal hydrogen are present
 (C) 4 bridged hydrogen atoms are not in the same plane in diborane
 (D) 1 bridged hydrogen and 1 terminal hydrogen are present

CPB057

5. The molecular shapes of diborane is shown:



Consider the following statements for diborane

1. Boron is approximately sp^3 hybridised
2. B-H-B angle is 180°
3. There are two terminal B-H bonds for each boron atom
4. There are only 12 bonding electrons available

Out of these statements :

- (A) 1, 3 and 4 are correct (B) 1, 2 and 3 are correct
(C) 2, 3 and 4 are correct (D) 1, 2 and 4 are correct

CPB053

6. The noble gas in cancer treatment is:

- (A) Ar (B) Kr (C) Xe (D) Rn

CPE055

SECTION-II

- This section contains **FIVE** questions.
- Each question has **FOUR** options for correct answer(s). **ONE OR MORE THAN ONE** of these four option(s) is (are) correct option(s).
- For each question, choose the correct option(s) to answer the question.
- Answer to each question will be evaluated according to the following marking scheme:
Full Marks : +4 If only (all) the correct option(s) is (are) chosen.
Partial Marks : +3 If all the four options are correct but **ONLY** three options are chosen.
Partial Marks : +2 If three or more options are correct but **ONLY** two options are chosen, both of which are correct options.
Partial Marks : +1 If two or more options are correct but **ONLY** one option is chosen and it is a correct option.
Zero Marks : 0 If none of the options is chosen (i.e. the question is unanswered).
Negative Marks : -2 In all other cases.

7. Which of the following oxides are mixed oxide:

- (A) PbO_2 (B) SnO_2 (C) Pb_2O_3 (D) Pb_3O_4

CPB063

8. When an inorganic compound (X) having 3c - 2e as well as 2c - 2e bonds reacts with ammonia gas at a certain temperature, gives a compound (Y) iso-structural with benzene. Compound (X) with ammonia at a high temperature, produces a hard substance (Z). Then

- (A) (X) is B_2H_6 (B) (Z) is known as inorganic graphite
(C) (Z) having structure similar to graphite (D) (Z) having structure similar to (X)

CPB059

9. Which of the following reaction produces PH_3 :

- (A) $Ca_3P_2 + H_2O \rightarrow$ (B) $P_4 + NaOH \rightarrow$ (C) $PH_4I + KOH \rightarrow$ (D) $H_3PO_2 \xrightarrow{\Delta}$

CPE059

10. Which amongst the following reactions cannot be used for the preparation of the halogen acid?

- (A) $2KBr + H_2SO_4(\text{Conc.}) \longrightarrow K_2SO_4 + 2HBr$
(B) $2NaCl + H_2SO_4(\text{Conc.}) \longrightarrow NaHSO_4 + HCl$
(C) $NaHSO_4 + NaCl \longrightarrow Na_2SO_4 + HCl$
(D) $CaF_2 + H_2SO_4(\text{conc.}) \longrightarrow CaSO_4 + 2HF$

CPE060

11. Concentrated HNO_3 reacts with iodine to give –
 (A) HI (B) HOI (C) HOIO_2 (D) HOIO_3

CPE062

SECTION-III

- This section contains **ONE** question.
- Each question has matching lists. The codes for the lists have choices (A), (B), (C) and (D) out of which **ONLY ONE** is correct
- For each question, marks will be awarded in one of the following categories :
 Full Marks : +3, if only the bubble corresponding to the correct option is darkened.
 Zero Marks : 0, if none of the bubbles is darkened.
 Negative Marks : -1, in all other cases.

12. Column-I (Reactions)

- (P) $\text{XeF}_2 + \text{PF}_5 \rightarrow$
 (Q) $\text{XeF}_4 + \text{Pt} \rightarrow$
 (R) $\text{XeF}_4 + \text{H}_2\text{O} \rightarrow$
 (S) $\text{XeF}_6 + \text{CsF} \rightarrow$

Code :

	P	Q	R	S
(A)	4	2	3	1
(C)	4	3	2	1

Column-II (Correct statements)

- (1) Fluoride of Xe acts as fluoride acceptor
 (2) Fluoride of Xe undergoes disproportion
 (3) Fluoride of Xe acts as fluorinating agent
 (4) Fluoride of Xe act as fluoride donor

	P	Q	R	S
(B)	3	2	1	4
(D)	3	4	2	1

CPE063

SECTION-IV

- This section contains **TWO** questions of matching type.
- This section contains **One** table (having 3 columns and 4 rows)
- Based on table, there are **THREE** questions
- Each question has **FOUR** options (A), (B), (C) and (D). **One or More than One** of these four options is correct
- For each question, darken the bubble corresponding to the correct option in the ORS.
- For each question, marks will be awarded in one of the following categories :
 Full Marks : +3 If only the bubble corresponding to the correct option is darkened.
 Zero Marks : 0 If none of the bubbles is darkened.
 Negative Marks : -1 In all other cases

MATCHING LIST TYPE 1 × 3 Q. (13 to 15)

For the following molecules in column-I, match the correct order of properties with column-II & column-III according to the questions asked.

Column - I Molecules		Column - 2 Properties		Column - 3 Correct order	
(I)	$\text{NH}_3, \text{PH}_3, \text{AsH}_3, \text{SbH}_3$	(i)	Bond angle	(p)	Increasing order
(II)	$\text{H}_2\text{O}, \text{H}_2\text{S}, \text{H}_2\text{Se}, \text{H}_2\text{Te}$	(ii)	Reducing character	(q)	Decreasing order
(III)	$\text{HF}, \text{HCl}, \text{HBr}, \text{HI}$	(iii)	Intermolecular force	(r)	All equal
(IV)	$\text{CH}_4, \text{SiH}_4, \text{GeH}_4, \text{SnH}_4$	(iv)	Boiling Point	(s)	Irregular order

13. Which is the only **CORRECT** combination?

- (A) (I), (iv), (p)
(C) (III), (iv), (q)

- (B) (II), (i), (p)
(D) (IV), (iii), (p)

CPE064

14. Which is the only **INCORRECT** combination?

- (A) (I), (ii), (p)
(C) (III), (iii), (q)

- (B) (IV), (i), (r)
(D) (II), (iv), (s)

CPE065

15. In which combination, Drago's Rule plays an insignificant role in prediction of orders?

- (A) (I), (i), (q)
(C) (IV), (i), (r)

- (B) (II), (iv), (s)
(D) (III), (ii), (p)

CPE066

Answer by appropriately matching the information given in the three columns of the following table.

Column - I Compound		Column - 2 Hybridisation		Column - 3 Property of compound	
(P)	SiC	(1)	sp	(i)	used in washing powder as brightener
(Q)	(C ₃)O ₂	(2)	sp ²	(ii)	Planar
(R)	Na ₂ [(B ₂ O ₄ (OH) ₄)]	(3)	sp ³	(iii)	X-X type linkage is present
(S)	C ₃ N ₃ Cl ₃	(4)	sp ³ d	(iv)	Non planar

16. Which of the following matching is **CORRECT**?

- (A) P - 3 - ii
(C) Q - 1 - iv

- (B) R - 3 - i
(D) S - 3 - ii

CPB068

17. Which of the following matching is **INCORRECT**?

- (A) S - 2 - ii
(C) Q - 1 - iii

- (B) P - 3 - iv
(D) P - 3 - ii

CPB069

18. Which of the following matching is **CORRECT**?

- (A) S-2-iii
(C) R-2-iii

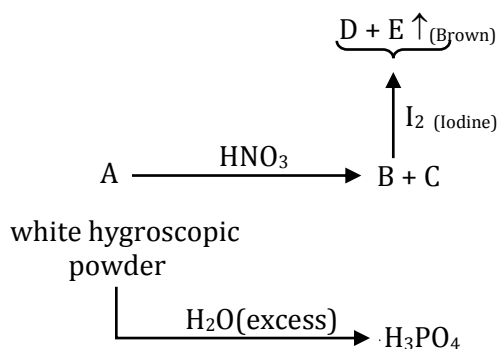
- (B) P-4-iv
(D) R-3-iv

CPB070

SECTION-V

- This section contains **ONE** paragraph.
- Based on each paragraph, there are **TWO** questions.
- Each question has **FOUR** options (A), (B), (C) and (D) **ONLY ONE** of these four options is correct.
- For each question, darken the bubble corresponding to the correct option in the ORS.
- For each question, marks will be awarded in one of the following categories :
Full Marks : +3 If only the bubble corresponding to the correct answer is darkened.
Zero Marks : 0 In all other cases.

Paragraph for Question No. 19 to 20



19. Which of the following compound is not having +5 oxidation state on its central atom

- (A) B (B) D
(C) C (D) E

CPE067

20. "A" on reacting with Acetamide yields a compound "F". The compound "F" contains

- (A) 4 σ bonds, 2 π bonds (B) 5 σ bonds, 1 π bonds
(C) 5 σ bonds, 2 π bonds (D) 2 σ bonds, 2 π bonds

CPE068

ANSWER KEY

EXERCISE - O

Que.	1	2	3	4	5	6	7	8	9	10
Ans.	D	B	C	D	B	C	C	C	B	C
Que.	11	12	13	14	15	16	17	18	19	20
Ans.	C	C	B	C	A	B	D	D	C	C
Que.	21	22	23	24	25	26	27	28	29	30
Ans.	A	B	A	A	D	D	B	D	B	C
Que.	31	32	33	34	35	36	37	38	39	40
Ans.	C	D	D	C	C	B	C	B	A	C
Que.	41	42	43	44	45	46	47	48	49	50
Ans.	C	B	B	A	C	B	B	C	A	A
Que.	51	52	53	54	55	56	57	58	59	60
Ans.	C	D	D	C	A	D	C	B	A	B
Que.	61	62	63	64	65	66	67	68	69	70
Ans.	B	B	C	C	A	D	A	C	A	A
Que.	71	72	73	74	75	76	77	78	79	80
Ans.	B	B	ABCD	ABC	ACD	ABC	ABC	BCD	AC	ABCD
Que.	81	82	83	84	85	86	87	88	89	90
Ans.	ABC	CD	ABC	ABC	CD	AB	ABD	BD	ABD	AB
Que.	91	92	93							
Ans.	ACD	ABC	BC							

EXERCISE - S

Que.	1	2	3	4	5	6	7	8	9	10
Ans.	16	3	3	78	0	26	2	6	16	1
Que.	11	12	13	14	15	16	17	18	19	20
Ans.	4	0	2	10	5	0	20	16	2	3
Que.	21	22	23	24	25	26	27	28	29	30
Ans.	6	2	0	2	4	11	7	5	4	10
Que.	31	32	33	34	35	36	37			
Ans.	6	6	2	3	5	7	24			

EXERCISE - JEE (Main) PYQ

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

EXERCISE - JEE (Advanced) PYQ

Que.	1	2	3	4	5	6	7	8	9	10
Ans.	D	A	A	BD	BD	6	B	D	ACD	ACD
Que.	11	12	13	14	15	16	17	18	19	20
Ans.	AD	19	288	BD	4	A	ABD	BC	C	AD
Que.	21	22	23							
Ans.	C	D	6							

JEE (Main) Practice Paper

Section-A	Q.	1	2	3	4	5	6	7	8	9	10
	A.	3	4	1	3	2	3	3	3	2	2
	Q.	11	12	13	14	15	16	17	18	19	20
	A.	2	1	4	1	2	3	2	1	2	1
Section-B	Q.	1	2	3	4	5	6	7	8	9	10
	A.	5	5	2	7	3	6	2	3	1	5

JEE (Advanced) Practice Paper

Section-I	Q.	1	2	3	4	5	6	
	A.	C	B	A	A	A	D	
Section-II	Q.	7	8	9	10	11		
	A.	CD	ABC	ABCD	A	C		
Section-III	Q.	12						
	A.	C						
Section-IV	Q.	13	14	15	16	17	18	
	A.	D	C	BCD	B	D	D	
Section-V	Q.	19	20					
	A.	D	C					