ALLEN CAREER INSTITUTE KOTA (RAJASTHAN)

path to success

PRE-MEDICAL

INORGANIC CHEMISTRY

ENTHUSIAST | LEADER | ACHIEVER

EXERCISE

p-Block Elements (group 13 to 18)

ENGLISH MEDIUM

EXERCISE-I (Conceptual Questions) — Build Up Your Understanding

IMPORTANT CONCEPTS

1. The geometry of the following molecules with respect to central atom is respectively

$N(SiH_3)_3$, Me_3N, $(SiH_3)_3P$

(1) planar, pyramidal, planar

(2) planar, pyramidal, pyramidal

(3) pyramidal, pyramidal, pyramidal

(4) pyramidal, planar, pyramidal

PB0002

2. In which of the following compounds, observed bond angle is found to be greater than expected, but not due to back bonding

(1) $N(SiH_3)_3$ (2) $O(CH_3)_2$

(3) $O(SiH_3)_2$ (4) All of these

PB0003

3. The product formed in the reaction,

$BCl_3 + H_2O \longrightarrow$ Product is –

(1) $H_3BO_3 + HCl$ (2) $B_2O_3 + HOCl$

(3) $B_2H_6 + HCl$ (4) No reaction

PB0005

4. The hybridization of boron in diborane is -

(1) sp (2) sp^2 (3) sp^3 (4) sp^3d^2

PB0007

5. Which is partially hydrolysied :

(1) PCl_3 (2) NCl_3 (3) $AsCl_3$ (4) $SbCl_3$

PB0008

6. Which of the following halides cannot be hydrolysed?

(i) TeF_6 (ii) SF_6 (iii) NCl_3 (iv) NF_3

Choose the correct code

(1) iii and iv (2) i, ii and iii

(3) i, ii and iv (4) ii and iv

PB0009

7. In which of the following dimer empty atomic orbital of central atom of monomer does not involve in hybridisation?

(1) Ga_2H_6 (2) Al_2Br_6 (3) Be_2H_4 (4) Cl_2O_6

PB0011

8. Which of the following molecule is having complete octet

(1) $BeCl_2$(dimer) (2) BeH_2(dimer)

(3) BeH_2(s) (4) $BeCl_2$(s)

PB0012

9. Which one of the following oxy acid of fluorine exists?

(1) HOF (2) HFO_3

(3) HFO_4 (4) HFO_2

PB0013

10. Which of the following statements is correct

(1) All form $HOXO_3$ type oxy acid

(2) Only chlorine and bromine form oxyacids

(3) All halogens form oxyacids

(4) Only iodine forms oxyacid

PB0014

11. $2P \xrightarrow{-H_2O} Q \xrightarrow{-[O]} R$

If P is phosphoric acid then according to given information the incorrect statement is

(1) Q is pyro form and R is hypo form of given present oxy acid P

(2) Number of H-atoms present in each given oxy acid is equal to its basicity

(3) In P, Q, R oxy acids, oxidation state of central atom remains same

(4) All given oxy acids have pπ-dπ bond(s) in their structure

PB0016

12. Silicate having one monovalent corner oxygen atom in each tetrahedron unit is

(1) sheet silicate (2) cyclic silicate

(3) single chain silicate (4) double chain silicate

PB0017

13. The silicate anion in the mineral kinoite is a chain of three SiO_4^{-4} tetrahedra, that share corners with adjacent tetrahedra. The charge of the silicate anion is

(1) –4 (2) –8 (3) –6 (4) –2

PB0018

14. Which of the following is an organo silicon polymer?

(1) silica (2) silicones

(3) silicon carbide (4) silicic acid

PB0019

15. Which reacts rapidly with oxygen in the air at ordinary temperature :

(1) White P (2) Red P

(3) N_2 (4) C

PB0020

16. Red and yellow phosphorus are :
(1) Allotropes (2) Isobars
(3) Isomers (4) Isotopes
PB0021

17. Which compound does not exist ?
(1) $TlCl_3$ (2) TlI_3
(3) BiF_5 (4) PbI_4
PB0332

18. Graphite conducts electricity because of the –
(1) Highly polarized nature of π-electrons.
(2) Highly delocalized nature of π-electrons
(3) Highly localized nature of π-electrons
(4) None of these
PB0023

BORON AND CARBON FAMILY

19. Alane is chemically –
(1) AlH_3 (2) $(AlH_3)_n$ (3) $LiAlH_4$ (4) None
PB0025

20. Aluminium is not acted upon by pure water as –
(1) Impurities in water are essential for the reaction to occur
(2) It is light metal
(3) It is protected by a film of aluminium oxide
(4) It is not a reactive metal
PB0026

21. The borax bead test is based upon the formation of
(1) Boron oxide (2) Boric acid
(3) Meta borates (4) Elemental boron
PB0027

22. Boric acid polymerizes due to –
(1) The presence of hydrogen bonds
(2) Its acidic nature
(3) Its geometry
(4) Its monobasic nautre
PB0028

23. Alum is found to contain hydrated monovalent cation $[M(H_2O)_6]^+$, trivalent cation $[M'(H_2O)_6]^{+3}$ and SO_4^{2-} in the ratio of :
(1) 1 : 1 : 1 (2) 1 : 1 : 2
(3) 1 : 2 : 2 (4) 1 : 2 : 3
PB0029

24. Borax $Na_2B_4O_7 \cdot 10H_2O$ is actually :-
(1) $Na_2[B_4O_5(OH)_4].8H_2O$
(2) $Na_2[B_4O_4(OH)_6].7H_2O$
(3) $Na_2[B_4O_3(OH)_8].6H_2O$
(4) $Na_2[B_4O_2(OH)_{10}].5H_2O$
PB0030

25. Potash alum is a double salt made up of two salts:
(1) Salt of a (SA + WB) + Salt of a (WA + WB)
(2) Salt of a (SA + SB) + Salt of a (SA + WB)
(3) Salt of a (SA + SB) + Salt of a (WA + WB)
(4) Salt of a (SA + WB) + Salt of a (WA + WB)
PB0032

26. From B_2H_6 all the following can be prepared except :
(1) H_3BO_3 (2) $B_2(CH_3)_4H_2$
(3) $B_2(CH_3)_6$ (4) $NaBH_4$
PB0033

27. The hydrides of group 14 elements are :
(1) Ionic (2) Oxidising
(3) Covalent (4) None of these
PB0035

28. Which gas is responsible for green house effect :
(1) CO_2 (2) SO_2 (3) CO (4) SO_3
PB0036

29. Artificial gem used for cutting glass is :
(1) Graphite (2) Diamond
(3) SiC (4) $CaCN_2$
PB0037

30. Borax and Boric acid are used in manufacturing of-
(1) Pyrex (2) Glass-wool
(3) Fibre glass (4) All of these
PB0227

31. Orthoboric acid acts as -
(1) Antiseptic (2) Antipyretic
(3) Antibiotic (4) None
PB0228

32. Crucibles made by which material is inert to dilute acids and alkalies.
(1) Graphite (2) Aluminum
(3) Boron (4) Iron
PB0229

33. Alum is not used as -

(1) As a mordant in dyeing

(2) As an insecticide

(3) In the purification of water

(4) In the tanning of leather

PB0230

34. Select the name of mineral which is used for the production of borax

(1) Chromite (2) Colemanite

(3) Chalocopyrite (4) Calamine

PB0231

35. Correct order of IP of Gr 13

(1) B > Al > Ga > In > Tl

(2) B > Al < Ga > In > Tl

(3) B > Al < Ga > In < Tl

(4) B > Al < Ga < In > Tl

PB0232

36. Al + NaOH + $H_2O \rightarrow$ product in aqueous state is

(1) $[Al(H_2O)_6]^{+3}$ (2) $[Al(H_2O)_4]^{3+}$

(3) $[Al(OH)_4]^{-1}$ (4) $Al(OH)_3$

PB0233

37. In Borax bead test, bead of cobalt is-

(1) $Co(BO_2)_2$, Pink (2) $Co(BO_2)_2$, Blue

(3) $Co(BO_3)_2$, Pink (4) $Co(BO_3)_2$, Blue

PB0234

38. Wrong statement is

(1) Boric acid is weak monobasic acid

(2) Boric acid is a protic acid

(3) Boric acid is a lewis acid

(4) Boric acid on heating finally form B_2O_3

PB0235

39. Correct IE order is -

(1) C > Si > Ge > Sn > Pb

(2) C < Si < Ge < Sn > Pb

(3) C > Si > Ge > Sn < Pb

(4) C < Si < Ge < Sn < Pb

PB0236

40. Which stability order is incorrect

(1) $Pb^{+2} > Pb^{+4}$ (2) $Sn^{+2} > Sn^{+4}$

(3) $Sn^{+2} < Pb^{+2}$ (4) $Sn^{+4} > Pb^{+4}$

PB0237

41. Nature of GeO_2 is

(1) Acidic (2) Basic

(3) Amphoteric (4) Neutral

PB0238

42. Which does not have dangling bond

(1) Diamond (2) Graphite

(3) Fullerene (4) All of these

PB0239

43. Match the column

A. Dry ice	i. Soft drinks
B. CO_2 gas	ii. used as refrigerant for icecream
C. Silicones	iii. used in softning of water
D. Zeolite	iv. used for making water proof jackets

	A	B	C	D
(1)	ii	i	iv	iii
(2)	ii	iii	iv	i
(3)	iii	i	ii	iv
(4)	iv	i	ii	iii

PB0240

44. Silicones are-

(1) RSiO- repeating unit polymer

(2) R_2SiO_2- repeating unit polymer

(3) R_2SiO- repeating unit polymer

(4) $RSiO_2$- repeating unit polymer

PB0241

45. In which silicate two oxygen atoms are shared (per unit)

(1) Pyrosilicate (2) Orthosilicate

(3) Chain silicate (4) None of these

PB0242

46. Catenation property is mainly exhibited by carbon in its family but it is not shown by its member

(1) Si (2) Ge (3) Sn (4) Pb

PB0243

47. Which among the following statements is incorrect regarding graphite ?

(1) Each carbon atom is sp^2 hybridised

(2) Fourth electron on each carbon atom forms a π bond.

(3) Layers are held by weak van der Waals forces

(4) Thermodynamically less stable than diamond

PB0244

48. Synthesis gas is -

(1) $CO + H_2$ (2) $CO_2 + H_2O$

(3) $CO + N_2$ (4) None

PB0245

NITROGEN FAMILY

49. P_4O_{10} is used extensively as a :

(1) Dehydrating agent (2) Catalytic agent

(3) Reducing agent (4) Preservative

PB0039

50. PH_3 produces smoky rings when it comes in contact with air. This is because :

(1) It is inflamable

(2) It combines with water vapours

(3) It combines with nitrogen

(4) It contains impurity of P_2H_4

PB0040

51. Which of the following is the correct statement for PH_3

(1) It is less basic than NH_3

(2) It is less poisonous than NH_3

(3) Bond angle of $PH_3 > NH_3$

(4) It does not show reducing properties

PB0041

52. Concentrated nitric acid reacts with iodine to give:-

(1) HI (2) HOI (3) $HOIO_2$ (4) $HOIO_3$

PB0043

53. Which of the following statement is true about white phosphorous & red phosphorous ?

(1) both are soluble in CS_2

(2) both are poisonous

(3) both can be oxidised by air

(4) both glow in dark

PB0246

54. A gas which is used as anaesthetic in dental surgery is :

(1) N_2 (2) CO (3) N_2O (4) NH_3

PB0045

55. On heating, ammonium dichromate and barium azide separately, we get :-

(1) N_2 from ammonium dichromate and NO from barium azide

(2) N_2O from ammonium dichromate and NO_2 from barium azide

(3) N_2O from ammonium dichromate and NO from barium azide

(4) N_2 in both cases

PB0047

56. NO_2 is formed when

(1) Cu reacts with conc. HNO_3

(2) Zn reacts with conc. HNO_3

(3) $Pb(NO_3)_2$ is heated

(4) All

PB0049

57. Which of the following does not produce NO_2 gas with conc. HNO_3 ?

(1) Cu (2) I_2 (3) Ag (4) Au

PB0051

58. Which gas is used to create inert atmosphere in industrial process.

(1) NH_3 (2) N_2 (3) O_2 (4) CO

PB0247

59. Liquid nitrogen is used as a refrigerant to preserve-

(1) Biological material (2) Food items

(3) In cryosurgery (4) All of the above

PB0248

60. Nitrogenous fertilisers are

(1) Ammonium nitrate (2) Urea

(3) Ammonium phosphate (4) All of the above

PB0249

61. Which compound is used in the pickling of stainless steel –

(1) Sulphuric acid (2) Nitric acid

(3) Phosphine gas (4) Phosphorous

PB0250

62. The gas which is used in Holme's signals-

(1) SO_2 (2) PH_3 (3) SO_3 (4) NH_3

PB0251

63. Phosphine gas is used in -

(1) Smoke screen (2) Home screen

(3) Inert atmosphere (4) As a fuel

PB0252

64. Quartz is a crystalline variety of

(1) Silicon (2) SiC

(3) SiO_2 (4) Na_2SiO_3

PB0253

65. Aluminium vessel should not be washed with material containing washing soda because-
(1) Washing soda is easily decomposed
(2) Washing soda is expensive
(3) Washing soda reacts with Aluminium to forms soluble aluminate
(4) Washing soda reacts with Aluminium to forms insoluble aluminium oxide

PB0254

66. Haber's process is used in manufacturing of -
(1) ammonia (2) Sadium azide
(3) phosphine (4) None

PB0255

67. NH_3 act as a -
(1) Lewis acid (2) Lewis base
(3) Amphoteric (4) None

PB0256

68. Which of the following group of p-block elements used to form fertilizers.
(1) Carbon family (2) Halogen family
(3) Nitrogen family (4) Oxygen family

PB0257

69. Which does not show Allotropy
(1) N (2) P (3) Sb (4) Bi

PB0258

70. In which compound covalency of N is 4.
(1) N_2O_5 (2) N_2O_4
(3) N_2O_3 (4) All of these

PB0259

71. Impurities responsible for inflammable nature of PH_3 is/are -
(1) P_2H_4 (2) P_4 vapours
(3) Both (4) None

PB0260

72. PCl_3 can be obtained by reaction of
(1) $P_4 + SOCl_2 \rightarrow$ (2) $P_4 + SO_2Cl_2 \rightarrow$
(3) Both (4) None

PB0261

73. Which oxy acid of phosphorous has two P-H bond-
A. Phosphonic acid
B. Phosphinic acid
C. Pyrophosphorous acid
D. Polymetaphosphoric acid
(1) A,D (2) B,C (3) A,C,D (4) A,C

PB0262

74. Which acid can reduce $AgNO_3$ into metallic silver
(1) Hypophosphorous acid
(2) Orthophosphoric acid
(3) Pyrophosphoric acid
(4) Hypophosphoric acid

PB0263

75. What is the Ratio of number of P-P bond in hypophosphoric acid, number of P-H bond in Pyrophosphorous acid and number of P-OH bond in cyclotrimetaphosphoric acid respectively?
(1) 2 : 1 : 3 (2) 1 : 2 : 3
(3) 2 : 2 : 1 (4) 1 : 2 : 2

PB0264

OXYGEN FAMILY

76. SO_2 can acts as -
(1) Reducing agent (2) Oxidising agent
(3) Bleaching agent (4) All

PB0052

77. Ozone acts as
(1) Oxidising agent (2) Disinfectant
(3) bleaching agent (4) all

PB0054

78. A black sulphide when treated with ozone becomes white. The white compound is :
(1) $ZnSO_4$ (2) $CaSO_4$
(3) $BaSO_4$ (4) $PbSO_4$

PB0055

79. H_2S gas changes a filter paper dipped in lead acetate solution into :
(1) Black (2) Red
(3) Green (4) Yellow

PB0056

80. The number of S–S bonds in sulphur trioxide trimer (S_3O_9) is :
(1) Three (2) Two (3) One (4) Zero

PB0057

81. Dry bleaching is done by :
(1) Cl_2 (2) SO_2 (3) O_3 (4) None

PB0058

82. When KBr is treated with conc. H_2SO_4 reddish brown gas is evolved. The gas is :
(1) Br_2 (2) HOBr (3) NO_2 (4) H_2O_2

PB0060

83. On addition of conc. H_2SO_4 to a chloride salt, colourless fumes are evolved but in case of iodide salt, violet fumes come out. This is because:-

(1) H_2SO_4 reduces HI to I_2
(2) HI is of violet colour
(3) HI gets oxidised to I_2
(4) HI changes to HIO_3

PB0062

84. Which of the following is responsible for turning starch-iodide paper blue when it is brought in contact with O_3?

(1) Liberation of iodine
(2) Liberation of oxygen
(3) Formation of alkali
(4) Reaction of ozone with litmus paper.

PB0063

85. Which one of the following property is not correct for ozone ?

(1) It oxidises lead sulphide
(2) It oxidises potassium iodide
(3) It oxidises mercury
(4) It cannot act as bleaching agent in dry state.

PB0064

86. By which of the following SO_2 is formed ?

(1) Reaction of dilute H_2SO_4 with Zn.
(2) Heating $Fe_2(SO_4)_3$.
(3) Reaction of concentrated H_2SO_4 with Cu.
(4) Heating of Cs_2SO_4.

PB0065

87. Pick out the statement/s that is/are wrong :-

(1) Oxygen is paramagnetic in all the three states of matter
(2) Ozone is diamagnetic
(3) Ozone is a linear molecule
(4) The O–O bonds in ozone have considerable double bond character

PB0066

88. SO_2 is used as :

(1) Bleaching agent
(2) Preservative
(3) Refining petroleum and Sugar
(4) All of the above

PB0265

89. Sulphuric acid is used in :

(1) Detergent industry
(2) Storage battery
(3) Manufacture of nitrocellulose product
(4) All the above

PB0266

90. Which 16^{th} group element have only positive oxidation state only

(1) S (2) Se (3) Te (4) Po

PB0267

91. The oxidation state of central atom in the anion of compound NaH_2PO_2 will be :

(1) +3 (2) +5 (3) +1 (4) –3

PB0268

92. Pure ozone is :

(1) Pale blue gas (2) Dark-blue liquid
(3) Violet-black solid (4) All

PB0269

93. Identify the incorrect statement

(1) Ozone absorb U.V. rays from sun.
(2) Depletion of ozone layer is due to C.F.C
(3) Ozone absorb infra-red radiations
(4) Oxides of nitrogen in the atmosphere can cause depletion of ozone layer.

PB0270

94. Arrange the following in decreasing order of their boiling Point ?

I. H_2O II. H_2S
III. H_2Se IV. H_2Te

(1) IV > III > II > I (2) II > III > IV > I
(3) I > IV > III > II (4) I > II >III > IV

PB0271

95. Large difference in melting and boiling point between O and S is due to -

(1) Non-metallic nature
(2) Difference in electronegativity is high
(3) Atomicity
(4) very small size

PB0272

96. Which hydride does not shows reducing property

(1) H_2Te (2) H_2Se (3) H_2S (4) H_2O

PB0273

97. True statement regarding halides of group 16 is-

(1) Hexafluorides are the only stable halides

(2) All hexafluorides are gaseous in nature.

(3) All hexafluorides shows octachedral structure

(4) All of these

PB0274

98. Industrially O_2 can be obtained by-

(1) thermal decomposition of Ag_2O.

(2) heating $KClO_3$.

(3) From H_2O_2

(4) From liquification and fractional distillation of air.

PB0275

99. Dioxygen does not reacts with

(1) Pt (2) Au

(3) He (4) All of these

PB0276

100. Incorrect about S- allotrope-

(1) At room temperature S-monoclinic is more stable

(2) Both rhombic and monoclinic have S_8 molecules

(3) S_8 ring of both is crown shape

(4) S_2 is paramagnetic like O_2

PB0277

101. Epsom salt is -

(1) $MgSO_4.7H_2O$ (2) $CaSO_4.2H_2O$

(3) $BaSO_4$ (4) $CuFeS_2$

PB0278

102. Which gas is used in oxyacetylene welding ?

(1) Oxygen (2) Phosphine

(3) Carbon dioxide (4) None

PB0279

103. Sulpur show paramagnetic behavior in -

(1) S_8 (2) S_2 (vapour)

(3) S_6 (4) S_2 (Solid)

PB0280

104. Contact process is used for manufacturing of -

(1) HNO_3 (2) H_2SO_4

(3) $H_2S_2O_2$ (4) None

PB0281

HALOGEN FAMILY AND INERT GASES

105. Select the correct statement (s) from the following-

(1) Fluorine displaces other halogens from the corresponding halides

(2) Fluorine reacts slowly with halogens

(3) Fluorine does not decompose water

(4) Except fluorine, other halogens directly combine with carbon

PB0068

106. The halide which does not give a precipitate with $AgNO_3$ is-

(1) F^- (2) Cl^- (3) Br^- (4) I^-

PB0070

107. Volatile nature of halogen is because :

(1) Halogen molecules are bonded by strong forces

(2) Halogen molecules are bonded by electrostatic forces

(3) The forces existing between the discrete molecule are only weak vander Waals force.

(4) Halogen molecules are more reactive

PB0071

108. Iodine gas turns starch iodide paper :

(1) Blue (2) Red

(3) Colourless (4) Yellow

PB0072

109. BrF_5 is a :

(1) Interhalogen compound

(2) Pseudohalogen compound

(3) Both the above

(4) None of the above

PB0073

110. Which of the following does not decolourise iodine?

(1) Na_2SO_3 (2) $Na_2S_2O_3$

(3) NaCl (4) NaOH

PB0075

111. Which one of the following halogen liberates oxygen on reacting with H_2O

(1) I_2 (2) Cl_2 (3) Br_2 (4) F_2

PB0076

112. Helium is added to oxygen used by deep sea divers because :
(1) It is less soluble in blood than nitrogen under high pressure
(2) It is lighter than nitrogen
(3) It is readily miscible with oxygen
(4) It is less poisonous than nitrogen
PB0078

113. Which of the following is not correct :
(1) XeO_3 has four σ and four π bonds
(2) The hybridization of Xe in XeF_4 is sp^3d^2
(3) Among noble gases, the occurrence of argon is highest in air
(4) Liquid helium is used as cryogenic liquid
PB0079

114. XeF_2 reacts with SbF_5 to form :
(1) $[XeF]^+ [SbF_6]^-$ (2) $[XeF_3]^- [SbF_4]^-$
(3) $Xe^- [PtF_6]^+$ (4) XeF_4
PB0080

115. The compound that cannot be formed by xenon is
(1) XeO_3 (2) XeF_4
(3) $XeCl_4$ (4) XeO_2F_2
PB0082

116. SbF_5 reacts with XeF_4 to form an adduct. The shapes of cation and anion in the adduct are respectively
(1) square planar, trigonal bipyramidal
(2) T-shaped, octahedral
(3) square pyramidal, octahedral
(4) square planar, octahedral
PB0084

117. Which of the following noble gas does not form clathrate compound?
(1) Kr (2) Ne (3) Xe (4) Ar
PB0085

118. An inorganic salt when heated with concentrated H_2SO_4 evolves a colourless pungent smelling gas but with concentrated H_2SO_4 and MnO_2 evolves a coloured pungent smelling gas which bleaches moist litmus paper. The coloured gas is :-
(1) NO_2 (2) Cl_2 (3) Br_2 (4) I_2
PB0086

119. Chlorine gas is not used in
(1) Bleaching agent
(2) Extraction of gold
(3) Refining of sugar
(4) Sterilising drinking water
PB0282

120. Which is used for enrichment of ^{235}U
(1) ClF (2) ICl_3 (3) ClF_3 (4) None
PB0284

121. Which statement is true about Helium
(1) Non-inflammable and heavy gas
(2) Inflammable and light gas
(3) Non-inflamable and light gas
(4) All the above
PB0285

122. Which noble gas is used in gas cooled nuclear reactors :
(1) He (2) Ne (3) Ar (4) Xe
PB0286

123. Which gas is used in discharge tube:
(1) He (2) Ne (3) Ar (4) Xe
PB0287

124. Which type of bulb are used in botanical garden and green houses :
(1) Argon Bulb (2) Neon bulb
(3) Both (4) None
PB0288

125. Which gas is used to provide an inert atmosphere in high temperature metallurgical process :
(1) Ne (2) N_2 (3) Ar (4) He
PB0289

126. Argon is used in arc-welding because of its
(1) Low reactivity with metal
(2) Ability to lower the melting point of metal
(3) High calorific value
(4) Inflammability
PB0290

127. Salt producing family is -
(1) Nitrogen family (2) Carbon family
(3) Halogen family (4) Inert gas
PB0292

128. Deacon's process is used for manufacturing of
(1) Cl_2 (2) F_2 (3) HCl (4) NaCl
PB0293

129. Correct order of bond dissociation enthalpy is -
(1) HF > HCl > HBr > HI
(2) HF > HBr > HCl > HI
(3) HI > HBr > HCl > HF
(4) None
PB0294

130. Which is used in estimation of CO-

(1) ClO_2 (2) Br_2O

(3) I_2O_5 (4) all of these

PB0295

131. Catalyst used in Deacon's process is -

(1) $CuCl_2$ (2) Cu_2Cl_2

(3) Pt wire (4) Ni powder

PB0296

132. Number of O-O bond in perchloric acid will be-

(1) 4 (2) 3 (3) 2 (4) Zero

PB0297

133. Which one of the following is not formed during hydrolysis of XeF_6?

(1) $XeOF_4$ (2) $XeOF_3$

(3) XeO_3 (4) XeO_2F_2

PB0298

134. Compound of radon have not been isolated but only identified by radiotracer technique, compound is-

(1) RnF_6 (2) RnF_4 (3) RnF_2 (4) RnF

PB0299

135. First inert gas compound was -

(1) $Xe[PtF_6]$ (2) $KrPtF_6$ (3) $XePtCl_6$ (4) $ArPtF_6$

PB0300

136. Which noble gas is not present in atmosphere.

(1) He (2) Ne (3) Xe (4) Rn

PB0301

EXERCISE-I (Conceptual Questions) ANSWER KEY

Que.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Ans.	**2**	**2**	**1**	**3**	**4**	**4**	**4**	**4**	**1**	**3**	**3**	**1**	**2**	**2**	**1**
Que.	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
Ans.	**1**	**4**	**2**	**2**	**3**	**3**	**1**	**2**	**1**	**2**	**3**	**3**	**1**	**3**	**4**
Que.	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45
Ans.	**1**	**1**	**2**	**2**	**3**	**3**	**2**	**2**	**3**	**2**	**1**	**3**	**1**	**3**	**3**
Que.	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60
Ans.	**4**	**4**	**1**	**1**	**4**	**1**	**3**	**3**	**3**	**4**	**4**	**4**	**2**	**4**	**4**
Que.	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75
Ans.	**2**	**2**	**1**	**3**	**3**	**1**	**2**	**3**	**1**	**4**	**3**	**1**	**2**	**1**	**2**
Que.	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90
Ans.	**4**	**4**	**4**	**1**	**4**	**3**	**1**	**3**	**1**	**4**	**3**	**3**	**4**	**4**	**4**
Que.	91	92	93	94	95	96	97	98	99	100	101	102	103	104	105
Ans.	**3**	**4**	**3**	**3**	**3**	**4**	**4**	**4**	**4**	**1**	**1**	**1**	**2**	**2**	**1**
Que.	106	107	108	109	110	111	112	113	114	115	116	117	118	119	120
Ans.	**1**	**3**	**1**	**1**	**3**	**4**	**1**	**1**	**1**	**3**	**2**	**2**	**2**	**3**	**3**
Que.	121	122	123	124	125	126	127	128	129	130	131	132	133	134	135
Ans.	**3**	**1**	**2**	**2**	**3**	**1**	**3**	**1**	**1**	**3**	**1**	**4**	**2**	**3**	**1**
Que.	136														
Ans.	**4**														

EXERCISE-II (Previous Year Questions) AIPMT/NEET

AIPMT 2006

1. Which of the following is **not** a correct statement?
(1) Multiple bonds are always shorter than corresponding single bonds
(2) The electron-deficient molecules can act as Lewis acids
(3) The canonical structures have no real existence
(4) Every AB_5 molecule does in fact have square pyramid structure.

PB0088

AIPMT 2007

2. Which one of the following anions is present in the chain structure of silicates :
(1) SiO_4^{4-} (2) $Si_2O_7^{6-}$
(3) $(Si_2O_5^{2-})_n$ (4) $(SiO_3^{2-})_n$

PB0093

AIPMT 2009

3. The straight chain polymer is formed by :-
(1) Hydrolysis of $(CH_3)_2SiCl_2$ followed by condensation polymerisation
(2) Hydrolysis of $(CH_3)_3SiCl$ followed by condensation polymerisation
(3) Hydrolysis of CH_3SiCl_3 followed by condensation polymerisation
(4) Hydrolysis of $(CH_3)_4$ Si by addition polymerisation

PB0094

AIPMT Pre. 2010

4. Which one of the following molecular hydrides acts as a Lewis acid ?
(1) CH_4 (2) NH_3 (3) H_2O (4) B_2H_6

PB0095

5. Oxidation states of P in $H_4P_2O_5$, $H_4P_2O_6$, $H_4P_2O_7$, are respectively :-
(1) +3, +4, +5 (2) +3, +5, +4
(3) +5, +3, +4 (4) +5, +4, +3

PB0096

6. How many bridging oxygen atoms are present in P_4O_{10} :-
(1) 4 (2) 2 (3) 5 (4) 6

PB0097

AIPMT Pre. 2011

7. Name the type of the structure of silicate in which one oxygen atom of $[SiO_4]^{4-}$ is shared ?
(1) Linear chain silicate (2) Sheet silicate
(3) Pyrosilicate (4) Three dimensional

PB0099

AIPMT Mains 2010

8. Which of the following oxide is amphoteric :-
(1) CO_2 (2) SnO_2 (3) CaO (4) SiO_2

PB0100

AIPMT Pre. 2012

9. Which of the following statements is not valid for oxyacids of phosphorus?
(1) All oxyacids contain tetrahedral four coordinated phosphorus
(2) All oxyacids contain atleast one P = O unit and one P – OH group
(3) Orthophosphoric acid is used in the manufacture of triple superphosphate
(4) Hypophosphorous acid is a diprotic acid

PB0104

10. Sulphur trioxide can be obtained by which of the following reaction:
(1) $S + H_2SO_4 \xrightarrow{\Delta}$
(2) $H_2SO_4 + PCl_5 \xrightarrow{\Delta}$
(3) $CaSO_4 + C \xrightarrow{\Delta}$
(4) $Fe_2(SO_4)_3 \xrightarrow{\Delta}$

PB0105

NEET-UG 2013

11. The basic structural unit of silicates is :-
(1) SiO_4^{2-} (2) SiO^- (3) SiO_4^{4-} (4) SiO_3^{2-}

PB0109

12. Which of these is not a monomer for a high molecular mass silicone polymer ?
(1) $PhSiCl_3$ (2) $MeSiCl_3$
(3) Me_2SiCl_2 (4) Me_3SiCl

PB0110

13. Which of the following does not give oxygen on heating ?
(1) $(NH_4)_2Cr_2O_7$ (2) $KClO_3$
(3) $Zn(ClO_3)_2$ (4) $K_2Cr_2O_7$

PB0111

14. 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. It aqueous solution is acidic, acts as reducing agent and its acid has never been isolated. The gas X is :-
(1) SO_3 (2) H_2S (3) SO_2 (4) CO_2

PB0112

AIPMT 2015

15. Nitrogen dioxide and sulphur dioxide have some properties in common. Which property is shown by one of these compounds, but not by the other?
(1) is a reducing agent
(2) is soluble in water
(3) is used as a food-preservative
(4) forms 'acid-rain'

PB0118

Re-AIPMT 2015

16. Strong reducing behaviour of H_3PO_2 is due to :
(1) High oxidation state of phosphorus
(2) Presence of two –OH groups and one P–H bond
(3) Presence of one –OH group and two P–H bonds
(4) High electron gain enthalpy of phosphorus

PB0119

17. Which of the statements given below is incorrect?
(1) ONF is isoelectronic with O_2N^-
(2) OF_2 is an oxide of fluorine
(3) Cl_2O_7 is an anhydride of perchloric acid
(4) O_3 molecule is bent

PB0120

18. The stability of +1 oxidation state among Al, Ga, In and Tl increases in the sequence :
(1) Tl < In < Ga < Al (2) In < Tl < Ga < Al
(3) Ga < In < Al < Tl (4) Al < Ga < In < Tl

PB0121

NEET-I 2016

19. Among the following, the correct order of acidity is
(1) $HClO_3 < HClO_4 < HClO_2 < HClO$
(2) $HClO < HClO_2 < HClO_3 < HClO_4$
(3) $HClO_2 < HClO < HClO_3 < HClO_4$
(4) $HClO_4 < HClO_2 < HClO < HClO_3$

PB0129

20. When copper is heated with conc. HNO_3 it produces
(1) $Cu(NO_3)_2$ and NO_2
(2) $Cu(NO_3)_2$ and NO
(3) $Cu(NO_3)_2$, NO and NO_2
(4) $Cu(NO_3)_2$ and N_2O

PB0130

21. Which is the **correct** statement for the given acids?
(1) Phosphinic acid is a diprotic acid while phosphonic acid is a monoprotic acid
(2) Phosphinic acid is a monoprotic acid while phosphonic acid is a diprotic acid
(3) Both are triprotic acids
(4) Both are diprotic acids

PB0131

NEET-II 2016

22. Boric acid is an acid because its molecule
(1) accepts OH^- from water releasing proton
(2) combines with proton from water molecule
(3) contains replaceable H^+ ion
(4) gives up a proton

PB0132

23. AlF_3 is soluble in HF only in presence of KF. It is due to the formation of
(1) AlH_3 (2) $K[AlF_3H]$
(3) $K_3[AlF_3H_3]$ (4) $K_3[AlF_6]$

PB0133

NEET(UG) 2017

24. In which pair of ions both the species contain S–S bond?
(1) $S_4O_6^{2-}$, $S_2O_3^{2-}$ (2) $S_2O_7^{2-}$, $S_2O_8^{2-}$
(3) $S_4O_6^{2-}$, $S_2O_7^{2-}$ (4) $S_2O_7^{2-}$, $S_2O_3^{2-}$

PB0138

25. It is because of inability of ns^2 electrons of the valence shell to participate in bonding that:-
(1) Sn^{2+} is oxidising while Pb^{4+} is reducing
(2) Sn^{2+} and Pb^{2+} are both oxidising and reducing
(3) Sn^{4+} is reducing while Pb^{4+} is oxidising
(4) Sn^{2+} is reducing while Pb^{4+} is oxidising

PB0139

NEET(UG) 2018

26. Which of the following statements is **not** true for halogens ?
(1) All form monobasic oxyacids.
(2) All are oxidizing agents.
(3) All except fluorine show positive oxidation states.
(4) Chlorine has the highest electron - gain enthalpy.

PB0146

27. The correct order of N-compounds in its decreasing order of oxidation states is -
(1) HNO_3, NO, N_2, NH_4Cl
(2) HNO_3, NO, NH_4Cl, N_2
(3) HNO_3, NH_4Cl, NO, N_2
(4) NH_4Cl, N_2, NO, HNO_3

PB0147

NEET(UG) 2019

28. Match the following :

(a) Pure nitrogen	(i) Chlorine
(b) Haber process	(ii) Sulphuric acid
(c) Contact process	(iii) Ammonia
(d) Deacon's process	(iv) Sodium azide or Barium azide

Which of the following is the **correct** option ?

	(a)	(b)	(c)	(d)
(1)	(i)	(ii)	(iii)	(iv)
(2)	(ii)	(iv)	(i)	(iii)
(3)	(iii)	(iv)	(ii)	(i)
(4)	(iv)	(iii)	(ii)	(i)

PB0302

29. Which of the following is **incorrect** statement ?

(1) PbF_4 is covalent in nature

(2) $SiCl_4$ is easily hydrolysed

(3) GeX_4 (X = F, Cl, Br, I) is more stable than GeX_2

(4) SnF_4 is ionic in nature

PB0303

NEET(UG) 2019 (ODISHA)

30. The liquified gas that is used in dry cleaning along with a suitable detergent is :-

(1) Water gas

(2) Petroleum gas

(3) NO_2

(4) CO_2

PB0304

31. Which of the following compounds is used in cosmetic surgery?

(1) Silica (2) Silicates

(3) Silicones (4) Zeolites

PB0305

32. A compound 'X' upon reaction with H_2O produces a colorless gas 'Y' with rotton fish smell. Gas 'Y' is absorbed in a solution of $CuSO_4$ to give Cu_3P_2 as one of the products. Predict the compound 'X'

(1) Ca_3P_2 (2) NH_4Cl

(3) As_2O_3 (4) $Ca_3(PO_4)_2$

PB0306

33. Which of the following oxoacids of phosphorus has strongest reducing property?

(1) $H_4P_2O_7$ (2) H_3PO_3

(3) H_3PO_2 (4) H_3PO_4

PB0307

34. Identify the correct formula of oleum from the following

(1) $H_2S_2O_7$ (2) H_2SO_3

(3) H_2SO_4 (4) $H_2S_2O_8$

PB0308

NEET(UG) 2020

35. Which of the following oxoacid of sulphur has –O–O– linkage ?

(1) $H_2S_2O_7$, pyrosulphuric acid

(2) H_2SO_3, sulphurous acid

(3) H_2SO_4, sulphuric acid

(4) $H_2S_2O_8$, peroxodisulphuric acid

PB0401

36. Identify the **correct** statements from the following:

(a) $CO_2(g)$ is used as refrigerant for ice-cream and frozen food.

(b) The structure of C_{60} contains twelve six carbon rings and twenty five carbon rings.

(c) ZSM-5, a type of zeolite, is used to convert alcohols into gasoline.

(d) CO is colorless and odourless gas.

(1) (c) and (d) only

(2) (a) and (b) and (c) only

(3) (a) and (c) only

(4) (b) and (c) only

PB0402

37. Which of the following is **not** correct about carbon monoxide?

(1) It is produced due to incomplete combustion

(2) It forms carboxyhaemoglobin

(3) It reduce oxygen carrying ability of blood

(4) The carboxyhaemoglobin (haemoglobin bound to CO) is less stable than oxyhaemoglobin.

PB0403

NEET(UG) 2020(COVID-19)

38. Which one of the following reactions does not come under hydrolysis type reaction ?

(1) $SiCl_{4(l)} + 2H_2O_{(l)} \rightarrow SiO_{2(s)} + 4HCl_{(aq)}$

(2) $Li_3N_{(s)} + 3H_2O_{(l)} \rightarrow NH_{3(g)} + 3LiOH_{(aq)}$

(3) $2F_{2(g)} + 2H_2O_{(l)} \rightarrow 4HF_{(aq)} + O_{2(g)}$

(4) $P_4O_{10(s)} + 6H_2O_{(l)} \rightarrow 4H_3PO_{4(aq)}$

PB0404

NEET(UG) 2021

39. Noble gases are named because of their inertness towards reactivity. Identify an **incorrect** statement about them.

(1) Noble gases are sparingly soluble in water.

(2) Noble gases have very high melting and boiling points.

(3) Noble gases have weak dispersion forces.

(4) Noble gases have large positive values of electron gain enthalpy.

PB0405

40. In which one of the following arrangements the given sequence is not strictly according to the properties indicated against it ?

(1) $HF < HCl < HBr < HI$: Increasing acidic strength

(2) $H_2O < H_2S < H_2Se < H_2Te$: Increasing pK_a values

(3) $NH_3 < PH_3 < AsH_3 < SbH_3$: Increasing acidic character

(4) $CO_2 < SiO_2 < SnO_2 < PbP_2$: Increasing oxidizing power

PB0406

NEET (UG) 2021 (Paper-2)

41. The bonds present in borazole are

(1) 12σ, 3π (2) 9σ, 6π

(3) 6σ, 6π (4) 9σ, 9π

PB0407

42. Which is/are correct statements about P_4O_6 and P_4O_{10}?

(1) Both form oxoacids H_3PO_3 and H_3PO_4 respectively

(2) In P_4O_6 each P is joined to three O and in P_4O_{10} each P is linked to four O atoms.

(3) Both (1) and (2)

(4) None of the above

PB0408

43. The charring product when $C_6H_{12}O_6$ is heated with conc. H_2SO_4 is due to

(1) oxidation (2) reduction

(3) dehydration (4) dehydrogenation

PB0409

NEET(UG) 2022

44. Given below are two statements:

Statement I :

The boiling points of the following hydrides of group 16 elements increases in the order - $H_2O < H_2S < H_2Se < H_2Te$.

Statement II:

The boiling points of these hydrides increase with increase in molar mass.

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

(1) Both **Statement I** and **Statement II** are incorrect

(2) **Statement I** is correct but **Statement II** is incorrect

(3) **Statement I** is incorrect but **Statement II** is correct

(4) Both **Statement I** and **Statement II** are correct

PB0410

45. Given below are two statements; one is labelled as **Assertion (A)** and the other is labelled as **Reason(R)** .

Assertion (A) : ICl is more reactive than I_2.

Reason(R) : I–Cl bond is weaker than I–I bond.

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

(1) Both **(A)** and **(R)** are correct but **(R)** is not the correct explanation of **(A).**

(2) **(A)** is correct but **(R)** is not correct.

(3) **(A)** is not correct but **(R)** is correct.

(4) Both **(A)** and **(R)** are correct and **(R)** is the correct explanation of **(A).**

PB0411

46. Choose the correct statement :
(1) Diamond is covalent and graphite is ionic.
(2) Diamond is sp^3 hybridised and graphite is sp^2 hybridized.
(3) Both diamond and graphite are used as dry lubricants.
(4) Diamond and graphite have two dimensional network.

PB0412

47. Which of the following statement is **not** correct about diborane ?
(1) The four terminal B-H bonds are two centre - two electron bonds.
(2) The four terminal Hydrogen atoms and the two Boron atoms lie in one plane.
(3) Both the Boron atoms are sp^2 hybridised
(4) There are two 3-centre-2-electron bonds.

PB0413

NEET(UG) 2022 (OVERSEAS)

48. Chlorine shows the bleaching action in the presence of moisture due to the formation of
(1) HOClO (2) H_2O_2
(3) O (4) HOCl

PB0414

49. The chain length of silicones can be controlled by adding
(1) $SiCl_4$ (2) $(CH_3)_2SiCl_2$
(3) $(CH_3)_3SiCl$ (4) CH_3SiCl_3

PB0415

Re-NEET(UG) 2022

50. Which of the following reactions is a part of the large scale industrial preparation of nitric acid ?
(1) $NaNO_3 + H_2SO_4 \xrightarrow[500K, 9\,bar]{Pt} NaHSO_4 + HNO_3$
(2) $4\ NH_3 + 5\ O_2$ (from air) $\xrightarrow[500K, 9\,bar]{Pt} 4\ NO + 6\ H_2O$
(3) $4\ HPO_3 + 2\ N_2O_5 \xrightarrow[500K, 9\,bar]{Pt} 4\ HNO_3 + P_4O_{10}$
(4) $Cu(NO_3)_2 + 2\ NO_2 + 2H_2O \xrightarrow[500K, 9\,bar]{Pt} 4\ HNO_3 + Cu$

PB0416

51. Match List-I with List-II :

	List-I (Compounds)		List-II (Molecular formula)
(a)	Borax	(i)	$NaBO_2$
(b)	Kernite	(ii)	$Na_2B_4O_7.4H_2O$
(c)	Orthoboric acid	(iii)	H_3BO_3
(d)	Borax bead	(iv)	$Na_2B_4O_7.10H_2O$

Choose the **correct answer** from the options given below :
(1) (a) – (iv), (b) – (ii), (c) – (iii), (d) – (i)
(2) (a) – (ii), (b) – (iv), (c) – (iii), (d) – (i)
(3) (a) – (iii), (b) – (i), (c) – (iv), (d) – (ii)
(4) (a) – (i), (b) – (iii), (c) – (iv), (d) – (ii)

PB0417

52. The element used for welding metals with high melting points is :
(1) Cl_2 (2) H_2 (3) Ne (4) He

PB0418

53. $Na_2B_4O_7 \xrightarrow{heat} X + NaBO_2$
in the above reaction the product "X" is :
(1) H_3BO_3 (2) B_2O_3
(3) $Na_2B_2O_5$ (4) NaB_3O_5

PB0419

54. Flourine is a stronger oxidising agent than chlorine because :
(a) F–F bond has a low enthalpy of dissociation.
(b) Flouride ion (F^-) has high hydration enthalpy.
(c) Electron gain enthalpy of flourine is less negative than chlorine.
(d) Flourine has a very small size.
Choose the most appropriate answer from the options given :
(1)) (a) and (b) only (2) (a) and (c) only
(3) (a) and (d) only (4) (b) and (c) only

PB0420

EXERCISE-II (Previous Year Questions) ANSWER KEY

Que.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Ans.	4	4	1	4	1	4	3	2	4	4	3	4	1	3	3
Que.	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
Ans.	3	2	4	2	1	2	1	4	1	4	1	1	4	1	4
Que.	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45
Ans.	3	1	3	1	4	1	4	3	2	2	1	3	3	1	4
Que.	46	47	48	49	50	51	52	53	54						
Ans.	2	3	3	3	2	1	2	2	1						

EXERCISE-III (Analytical Questions) Master Your Understanding

1. One mole of magnesium nitride on the reaction with an excess of water gives
(1) Two moles of ammonia
(2) One mole of nitric acid
(3) One mole of ammonia
(4) Two moles of nitric acid
PB0160

2. Which of the following oxides of nitrogen is solid :-
(1) NO_2 (2) N_2O
(3) NO (4) N_2O_5
PB0161

3. Which has no S-S-bond.
(1) $S_2O_4^{-2}$ (2) $S_2O_5^{-2}$
(3) $S_2O_3^{-2}$ (4) $S_2O_7^{-2}$
PB0162

4. The products obtained on heating $LiNO_3$ will be:-
(1) $LiNO_2 + O_2$ (2) $Li_2O + NO_2 + O_2$
(3) $Li_3N + O_2$ (4) $Li_2O + NO + O_2$
PB0163

5. Which of the following on thermal-decomposition yields a basic as well as an acidic oxide ?
(1) NH_4NO_3 (2) $NaNO_3$
(3) $KClO_3$ (4) $CaCO_3$
PB0164

6. An example of a cyclic silicate is :-
(1) Beryl (2) Zeolite
(3) Talc (4) Zircon
PB0165

7. Which one of the following reacts with glass ?
(1) H_2SO_4 (2) HF
(3) HNO_3 (4) $K_2Cr_2O_7$
PB0166

8. When I_2 is passed through KCl, KF, KBr sulutions :
(1) Cl_2 and Br_2 are evolved
(2) Cl_2 is evolved
(3) Cl_2, Br_2, F_2 are evolved
(4) No gas is evolved
PB0167

9. Ammonia can be dried by
(1) Conc.H_2SO_4 (2) P_4O_{10}
(3) CaO (4) Anhydrous $CaCl_2$
PB0168

10. Which of the following is incorrect ?
(1) O_2 is weaker oxidant than O_3
(2) O_2 has small bond length than O_3
(3) Both O_2 and O_3 are paramagnetic
(4) O_3 is angular in shape
PB0171

11. The correct order of acidic strength is :
(1) $Cl_2O_7 > SO_3 > P_4O_{10}$ (2) $CO_2 > N_2O_5 > SO_3$
(3) $Na_2O > MgO > Al_2O_3$ (4) $K_2O > CaO > MgO$
PB0173

12. Which of the following statements about H_3BO_3 is not correct
(1) It is a strong tribasic acid
(2) It is prepared by acidifying an aqueous solution of borax
(3) It has a layer structure in which planar H_3BO_3 units are joined by hydrogen bonds
(4) It does not act as proton donor but acts as a Lewis acid by accepting hydroxyl ion
PB0175

13. Which of the following property is not related with PH_3
(1) It is a colorless gas having rotten fish smell
(2) it is non poisonous
(3) it is slightly soluble in water
(4) it is a weak Lewis base
PB0176

14. Which of the following is a mixed anhydride
(1) P_4O_{10} (2) SO_3 (3) Cl_2O_6 (4) SO_2
PB0177

15. In which of the following phosphorous atoms are at the corner of tetrahydron.
(1) P_4 (2) P_4O_6
(3) P_4O_{10} (4) All of these
PB0178

16. In which of the following option product gas X and Y (other than water vapour) are same ?

(1) $Mg_2C_3 + H_2O \rightarrow X$; $Al_4C_3 + H_2O \rightarrow Y$

(2) $NH_4NO_3 \xrightarrow{\Delta} X$; $(NH_4)_2Cr_2O_7 \xrightarrow{\Delta} Y$

(3) $NH_4Cl \xrightarrow{\Delta} X$; UREA $\xrightarrow{H_2O} Y$

(4) Zn + dil. $HNO_3 \rightarrow X$; Ag + dil.$HNO_3 \rightarrow Y$

PB0179

17. When con. H_2SO_4 is added to charcoal :

(1) There is no reaction

(2) Water gas is formed

(3) SO_2 and CO_2 are evolved

(4) CO and SO_2 are evolved

PB0180

18. Which of the following statements are correct for SO_2 gas?

(1) It acts as bleaching agent in moist conditions.

(2) It's molecule has linear geometry.

(3) It's dilute solution is used as lubricant

(4) It can be prepared by the reaction of dilute H_2SO_4 with metal sulphide

PB0181

19. Iodine is placed between two liquids C_6H_6 and water then :

(1) It dissolves more in C_6H_6

(2) It dissolves more in water

(3) It dissolves equally in both

(4) Does not dissolve in both

PB0182

20. Which is not oxidised by Cl_2 :-

(1) F^- (2) NO_3^- (3) SO_4^{-2} (4) All

PB0309

21. Which is/are wrong about P_4O_{10} molecule :-

(1) Each 'P' atom can be considered to be sp^3 hybridised

(2) There are six P–O–P bonds in the molecule

(3) There are two types of P–O bond lengths

(4) P–O–P angle is 180°

PB0185

22. Correct Statement is -

(1) Most reactive non metal and most reacting metal forms ionic compound

(2) 2^{nd} period element can show maximum covalency of four

(3) heavier element has/have or have less contribution of π bond in stability

(4) All of these

PB0310

23. Correct match is

(1) Melting point	B > Al
(2) Lewis acidic nature	$BCl_3 > BBr_3$
(3) Atomic radii	In > Tl
(4) Density	Al > Ga

PB0311

24. In the following reaction

$B_2H_6 + NH_3 \xrightarrow{\Delta} (A)$

1 : 2

Identify 'A' ?

(1) B_2O_3

(2) $[BH_2(NH_3)_2]^+[BH_4]^-$

(3) $BH_3.NMe_3$

(4) $B_3N_3H_6$

PB0312

25. Order of bond enthalpy is -

(1) C–C < Si–Si < Ge–Ge

(2) C–C > Si–Si > Ge–Ge

(3) C–C < Si–Si > Ge–Ge

(4) C–C > Si–Si < Ge–Ge

PB0313

26. Chain length of silicone ploymer is controlled by addition of -

(1) R_2SiCl_2 (2) $RSiCl_3$

(3) R_3SiCl (4) R-group

PB0314

27. Incorrect statement about fullerene is/are-

A. Contains twenty 5-membered rings and twelve 6-membered rings

B. Contains 60 vertices, each occupied by carbon

C. Non aromatic in nature

D. All C-are sp^2 hybridised.

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

PB0315

28. Choose incorrect order

(1) Reducing nature	$NH_3 < PH_3$
(2) Melting point	$NH_3 > PH_3$
(3) Bond angle	$AsH_3 < SbH_3$
(4) Basic nature	$PH_3 > AsH_3$

PB0316

29. $ZnSO_{4\,(aq.)} + NH_4OH_{(aq.)} \rightarrow$ white ppt of A

$FeCl_{3\,(aq.)} + NH_4OH_{\,(aq.)} \rightarrow$ Brown ppt of B

Here A and B are respectively-

(1) ZnO, Fe_2O_3 (2) $Zn(OH)_2.Fe(OH)_3$

(3) $Zn(OH)_2$, NH_4Cl (4) $(NH_4)_2SO_4$, Fe_2O_3

PB0317

30. $\text{Red P} \xrightarrow[\text{sealed tube}]{803K} X$

$\text{White P} \xrightarrow[\text{Inert atmosphere (for many days)}]{573K} Y$

here X and Y are resp.

(1) α, and β black P (2) β black P and Red P

(3) α Black P and Red P (4) White P and Red P

PB0318

31. $PH_{3(aq)} \xrightarrow{h\nu} X + H_2$

here x is

(1) P_{White} (2) P_{Red}

(3) $P_{Black\text{-}\alpha}$ (4) $P_{Black\text{-}\beta}$

PB0319

32. In which of the following reactions, product given are not correct ?

(1) $(NH_4)_2Cr_2O_7 \xrightarrow{\Delta} N_2 + Cr_2O_3 + H_2O$

(2) $Ba(N_3)_2 \xrightarrow{\Delta} Ba + 3\,N_2$

(3) $NH_4Cl + NaNO_2 \xrightarrow{\Delta} NaCl + NH_3 + NO_2$

(4) $3\,Mg + N_2 \xrightarrow{\Delta} Mg_3N_2$

PB0320

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

(1) $H_3PO_2 > H_3PO_3$: Reducing nature

(2) $H_3PO_4 > H_3PO_2$: Basicity

(3) H_3PO_3 : Disproportionates on heating

(4) $(HPO_3)_3$: Three P–H bonds

PB0321

34. In which reaction one of the product is not a paramagnetic gas

A. $Cu + HNO_{3\,(dil.)} \rightarrow P$

B. $Cu + HNO_{3\,(conc.)} \rightarrow Q$

C. $Zn + HNO_{3\,(dil.)} \rightarrow R$

D. $Zn + HNO_{3\,(conc.)} \rightarrow S$

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

PB0322

35. On reaction of SO_2 with acidic $KMnO_4$ solution which is correctly observed ?

(1) Colour of $KMnO_4$ is disappeared

(2) SO_2 is oxidised to SO_3

(3) MnO_4^- is reduced to MnO_2

(4) All of these

PB0323

36. Which is not related with conc. H_2SO_4.

(1) It is a strong dehydrating agent

(2) Hot and concentrated form acts as a moderate oxidising agent.

(3) Consumption of H_2SO_4 by a country is a parameter to gauze its industrial strength

(4) It is highly volatile and strongly acidic in nature

PB0324

37. $S + H_2SO_4$ conc. $\rightarrow$ Gas A $+ 2H_2O$

$C + H_2SO_4$ conc. $\rightarrow$ Gas A $+ CO_2 + 2H_2O$

here gas A will be

(1) SO_2 (2) SO_3

(3) S_2 (4) Both 1 & 2

PB0325

38. $Cl_2 + F_{2\,(Excess)} \xrightarrow{573K} ClF_3$

Shape of the compound (A) is

(1) Linear (2) Tetrahedral

(3) Trigonal bipyramidal (4) T-shaped

PB0326

39. Deacon's process of manufacture of chlorine is represented by the following equation ?

(1) $MnO_2 + HCl \rightarrow MnCl_2 + Cl_2 + H_2O$

(2) $HCl + O_2 \xrightarrow{CuCl_2} Cl_2 + H_2O$

(3) $NaCl + MnO_2 + H_2SO_4 \rightarrow Cl_2 + MnCl_2 + NaHSO_4 + H_2O$

(4) $KMnO_4 + HCl \rightarrow KCl + MnCl_2 + H_2O + Cl_2$

PB0327

40. Which statement is true -

(1) Halogen have maximum negative ΔH_{eg} in corresponding period,

(2) Order of bond dissociation enthalpy $F_2 > Br_2$.

(3) Fluorine has the highest electron affinity in periodic table

(4) Halogens have the smallest in radii in a period due to their diatomic nature.

PB0328

41. The incorrect reaction among the given below reaction is –

(1) $Fe + HCl \longrightarrow FeCl_3 + H_2$

(2) $Na_2SO_3 + 2HCl \longrightarrow 2NaCl + H_2O + SO_2$

(3) $Ca(OH)_2 + Cl_2 \longrightarrow Ca(OCl_2)_2 + CaCl_2 + H_2O$

(4) $NaOH_{(hot + conc.)} + Cl_2 \longrightarrow NaCl + NaClO_3 + H_2O$

PB0329

42. $XX' + H_2O \rightarrow X + Y$

here X and Y are

(1) HX', HOX (2) HX, HOX'

(3) Both (4) None

PB0330

43. Incorrect reaction is-

(1) $XeF_6 + 3\ H_2O \rightarrow XeO_3 + HF$

(2) $XeF_6 + H_2O \rightarrow XeOF_4 + HF$

(3) $XeF_6 + 2\ H_2O \rightarrow XeO_2F_2 + HF$

(4) $XeF_6 + 2\ H_2O \rightarrow Xe + HF + O_2$

PB0331

EXERCISE-III (Analytical Questions) ANSWER KEY

Que.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Ans.	1	4	4	2	4	1	2	4	3	3	1	1	2	3	4
Que.	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
Ans.	3	3	1	1	4	4	4	1	4	2	3	3	3	2	3
Que.	31	32	33	34	35	36	37	38	39	40	41	42	43		
Ans.	2	3	4	3	1	4	1	4	2	1	1	1	4		