EXERCISE

1. If atomic numbers 117, 120 are discovered then their blocks will be:

(1) s, p (2) p, s

(3) p, d (4) d, p

2. Increasing order of metallic character will be

(1) P < Si < Be < Mg < Na

(2) P > Si > Be > Mg > Na

(3) P < Si < Be > Mg < Na

(4) P > Si < Be < Mg < Na

3. Which of following statement concerning element with atomic number 10 is false?

(1) Element is monoatomic

(2) It has a almost zero electron affinity

(3) If forms a covalent network solid

(4) If has extremely high value of I.E. in own period

4. Following are configuration of 4 atom :-

P = $(Ne)3s^2 3p^3$

Q = $(Ar)3d^{10}4s^2 4p^3$

R = $(He)2s^2 2p^5$

S = $(Ne)3s^1$

Incorrect statement is :-

(1) EA : Q > R (EA = electron affinity)

(2) EN : R > P (EN = electro negativity)

(3) IP : P > S (IP = Ionisation potential)

(4) Atomic radius : S > R

5. Among P, S, Cl, F most and least negative ΔH_{eg} will be respectively of:

(1) Cl, P (2) P, Cl

(3) Cl, F (4) F, Cl

6. Which of the following order is valid for Li < B < Be < C < O < N < F < Ne

(1) IE (2) EGE

(3) EN (4) size

7. Which of the following represents the correct order of increasing first ionization enthalpy for Ca, Ba, S, Se and Ar ?

(1) Ca < S < Ba < Se < Ar

(2) S < Se < Ca < Ba < Ar

(3) Ba < Ca < Se < S < Ar

(4) Ca < Ba S < Se < Ar

8.

	Column-I (Elements)		Column-II (Periodic Properties)
(A)	F	(P)	Maximum ionization energy
(B)	Cl	(Q)	Maximum electronegativity
(C)	Fe	(R)	Maximum electron affinity
(D)	He	(S)	Variable oxidation state

Select the correct Match :-

(1) (A) → (P), (B) → (Q), (C) → (R), (D) → (S)

(2) (A) → (R), (B) → (Q), (C) → (P), (D) → (S)

(3) (A) → (Q), (B) → (R), (C) → (S), (D) → (P)

(4) (A) → (Q), (B) → (P), (C) → (S), (D) → (R)

9. Highest floroanion of Boron and Aluminium is:

(1) BF_6^{3-}, AlF_6^{3-} (2) BF_4^-, AlF_6^-

(3) BF_4^-, AlF_6^{3-} (4) BF_4^-, AlF_4^-

10. Which of the following order is wrong :-

(1) $NH_3 < PH_3 < AsH_3$ — Acidic

(2) Li < Be < B < C — First IP

(3) $Al_2O_3 < MgO < Na_2O < K_2O$ — Basic

(4) $Li^+ < Na^+ < K^+ < Cs^+$ — Ionic Radius

11. e^- configuration of $_{90}$Th-

(1) $(n-2)f^2$, $(n-1)d^1$ ns^1

(2) $(n-2)f^1$, $(n-1)d^1$ ns^2

(3) $(n-2)f^0$, $(n-1)d^2$ ns^2

(4) $(n-2)f^2$, $(n-1)d^0$ ns^2

12. Which property decreases from left to right across the periodic table and increases from top to bottom?

(i) Atomic radius

(ii) Electronegativity

(iii) Ionisation energy

(iv) Metallic character

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

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

13. Which of the following statements are not correct:-

(1) The electron affinity of 'Si' is greater than that of C

(2) BeO is amphoteric while B_2O_3 is acidic

(3) The ionisation energy of 'Tl' is less than that of Al

(4) The ionisation energy of elements of 'Cu' group is less than that of the respective elements of Zn-group

14. Which order for atomic radii is incorrect?

(1) $H^- > Li^+ \geq Mg^{+2} > Al^{+3}$

(2) $MnO_2 > KMnO_4$

(3) $O^{-2} > F^- > Na^+ > Mg^{+2}$

(4) $B > Al \simeq Ga < In \simeq Tl$

15. Which is not incorrect for acidic strength?

(1) $H_2S < H_2Se < H_2Te$

(2) $HClO_4 > HClO_3 > HClO_2 > HClO$

(3) $P_4O_{10} > SiO_2$

(4) All are correct

16. Which is incorrect?

(1) Na < Al < Mg < Si IP_1 Order

(2) V < Cr < Fe < Mn IP_3 Order

(3) P < Si < Be < Mg < Na Metallic Character

(4) Yb > Ce > Lu > Sm Order of atomic radius

17. Which is correct for ΔH_{eg} ?

(1) Cl > F > Br > I > S

(2) $O^- > O > O^+$

(3) $S^- > O^-$

(4) Cl > F > S > O > N > P

18. Match the column -

Column I	Column II
(a) N_2O	(P) Normal Oxide
(b) Na_2O	(Q) Neutral Oxide
(c) Ga_2O_3	(R) Sub Oxide
(d) C_3O_2	(S) Basic Oxide
(e) V_3O_4	(T) Amphoteric Oxide
	(U) Mixed Oxide

(1) (a) - Q, (b) - P,S (c) - R, (d) - T, (e) - U

(2) (a) - Q (b) - P,S (c) - T, (d) - R, (e) - U

(3) (a) - R,P (b) - Q,S (c) - U, (d) - T, (e) - R

(4) (a) - P,Q (b) - R,S (c) - T, (d) - U, (e) - R

19. Correct statements among the following is/are:-

(1) 2nd electron gain enthalpy is always endothermic for neutral atoms.

(2) Electronegativity is the property of bonded atoms

(3) Al_2O_3 and BeO are amphoteric oxide

(4) None of these are incorrect

20. Which has maximum number of unpaired e^-?

(1) Na (2) Mn

(3) Cr (4) Fe^{+2}

21. In which of the following pairs, first member has higher first IP

(a) N,O (b) B, Be (c) Al, Ga

(d) F, Cl (e) Zn, Ga (f) F^-, Cl^-

Correct option is

(1) a,c,f,d (2) a,d,e

(3) b, d, e, f (4) a, d, e, f

22. Among the following statement identify not correct statement?

(1) O has least electron affinity in its group.

(2) I has largest E.A. among halogen.

(3) S^- has higher I.E then O^-

(4) None of these

23. The electron affinity values in $Kjmol^{-1}$ of halogen x, y and z are respectively –348, –331 and –312 then x, y and z are respectively:-

(1) F, Cl, Br (2) Cl, F, Br

(3) Cl, Br, F (4) Br, Cl, F

24. Which given order is wrong according to given property :-

(1) $K_2O > CaO$ basic nature

(2) $NH_3 > H_2O$ basic nature

(3) $H_2O < H_2S$ Acidic nature

(4) KH > NaH acidic nature

25. Incorrect match ?

	I.P.	Reason
(A)	N > O	Half filled configuration
(B)	Zr < Hf	Lanthanoid contraction
(C)	Na > K	Z_{eff}
(D)	Al < Ga	Transition contraction

(1) only A (2) A, B, D

(3) Only C (4) Only C, D

26. The smallest cation and the smallest anion are respectively

(1) H^+ and H^- (2) H^+ and F^-

(3) Li^+ and H^- (4) Li^+ and F^-

27. Which among the following statement is wrong

(1) Electronic configuration of Gd_{64} is $4f^7 5d^1 6s^2$

(2) Ce^{4+} is a good reductant

(3) Actinoids exhibit higher oxidation states than Lanthanoids

(4) Actinoids contraction is greater from element to element than Lanthanoid contraction

28. Which of the following order of IP is incorrect

(1) $Na^+ > Mg^+$ (2) $Mg^{+2} > Mg^+$

(3) $He > Li^+$ (4) $Be > B$

29. Consider the following values of IE(ev) for elements W and X :-

Element	IE_1	IE_2	IE_3	IE_4
W	10.5	15.5	24.9	79.8
X	8	14.8	78.9	105.8

Other two elements Y and Z have outer electronic configuration $ns^2\ np^4$ and $ns^2\ np^5$ respectively. According to given information which of the following compound (s) is/are not possible.

(a) W_2Y_3 (b) X_2Y_3

(c) WZ_2 (d) XZ_2

(1) a, b (2) b, c

(3) c, d (4) a, d

30. Which represents the electronic configuration of the most electropositive element

(1) $[He]2s^1$ (2) $[Xe]6s^1$

(3) $[He]\ 2s^2$ (4) $[Xe]6s^2$

31. IP and EA of 'F' are 17.42 and 3.45 ev/atom resp. EN of 'F' will be :-

(1) 2.7 (2) 3.7

(3) 4.07 (4) 6.7

32. The correct order of first electron affnity of O, S and Se is

(1) O > S > Se (2) S > O > Se

(3) Se > O > S (4) S > Se > O

33. A = $1s^2\ 2s^2\ 2p^4$ B = $1s^2\ 2s^2\ 2p^5$

C = $1s^2\ 2s^2\ 2p^6$

(One of A/B/C is neutral atom)

A, B & C are atoms/anion of same element. Then:-

(1) $B_{(g)} + e^- \rightarrow C_{(g)}$ is exothermic

(2) $A_{(g)} \rightarrow A^+_{(g)} + e^-$ is exothermic

(3) $C_{(g)} \rightarrow A_{(g)} + 2e$ is exothermic

(4) $B_{(g)} \rightarrow A_{(g)} + e^-$ is exothermic

34. Correct order of increasing atomic size is

(1) N < F < Si < P (2) F > N < P < Si

(3) F < N < P < Si (4) F < N < Si < P

35. The correct order of second IP is :-

(1) Na < Mg > Al < Si

(2) Na > Mg < Al > Si

(3) Na > Mg > Al < Si

(4) Na > Mg > Al > Si

36. Select the correct order of first ionisation potential

(1) $O_2^{2+} > O_2$ (2) $O_2^{2+} < O_2$

(3) $O_2 \approx O_2^+$ (4) None of these

37. The required energy will be maximum for the process

(1) $Ba \rightarrow Ba^{+2}$ (2) $Be \rightarrow Be^{+2}$

(3) $Cs \rightarrow Cs^+$ (4) $Li \rightarrow Li^+$

38. Which of the following molecule has highest E.N. of Xe ?

(1) XeF_2 (2) XeF_4

(3) XeO_3 (4) None of these

39. The compound X – O – H is likely to act as a base, if compared to hydrogen, X has :-

(1) higher ionization potential

(2) lower electron negativity

(3) higher electronegativity

(4) lower atomic radius

40. Among the following hydroxides which are is most basic?

(1) $Lu(OH)_3$ (2) $La(OH)_3$

(3) $Pm(OH)_3$ (4) $Yb(OH)_3$

41. Amongst the following elements whose electronic configuration is given below, the one having highest ionisation enthalpy is

(1) $[Ne]3s^2 3p^1$ (2) $[Ne]3s^2 3p^3$

(3) $[Ne]3s^2 3p^2$ (4) $[Ar]3d^{10} 4s^2 4p^3$

42. Group number and period no.of element having configuration [Kr]$4d^{10}5s^{\circ}$ are:

(1) X, 4^{th} (2) X,5^{th}

(3) VIII,4^{th} (4) VIII, 5^{th}

43. Block, group and period number of element, A. respectively. when electronic configuration of A is [Rn] $6d^27s^2$:

(1) d-block, IV B, 7^{th}

(2) d-block, II B, 7^{th}

(3) f-block, II B, 6^{th}

(4) f-block, III B, 7th

44.

Column-I (Type of Elements)	Column-II (outer electronic configuration)
(A) Inert gas elements	(i) $ns^{1-2}\ np^{0-5}$
(B) Representative elements	(ii) $1s^2$ and $ns^2\ np^6$
(C) Transition elements	(iii) $(n-2)f^{1-14}$ and $(n-1)\ d^{0-1}\ ns^2$
(D) Inner transition elements	(iv) $(n-1)^{1-10}\ ns^{1 or 2}$

(1) A - i, B - ii, C - iii, D - iv

(2) A - ii, B - i, C - iii, D - iv

(3) A - ii, B - i, C - iii, D - iv

(4) A - ii, B - i, C - iv, D - iii

45. Correct order of spin magnetic moment of trivalent Lanthanoids ions is :

(1) $Gd^{+3} < Ce^{+3} < Lu^{+3}$ (2) $Lu^{+3} < Ho^{+3} < Gd^{+3}$

(3) $Gd^{+3} < Yb^{+3} < Tb^{+3}$ (4) $Pr^{+3} > Sm^{+3} > Eu^{+3}$

46. Incorrect order of radius is :

(1) $H^- > Li^+ > Mg^{2+}$ (2) $P^{-3} > S^{-2} > K^+$

(3) $Br^- > S^{-2} > Cl^- > F^-$ (4) Ni > Cu > Zn

47. Incorrect order of ionic radius is :

(1) $La^{+3} > Gd^{+3} > Eu^{+3} > Lu^{+3}$

(2) $Na^+ > Li^+ > Mg^{+2} > Al^{+3} > Be^{+2}$

(3) $In^+ > Sn^{+2} > Sb^{+3}$

(4) $K^+ > Sc^{+3} > V^{+5} > Mn^{+7}$

48. Which of the following order of I.P. is incorrect?

(1) Al > Mg > Be > B (2) S < P < O < N

(3) Sc > Y > La (4) Ni < Pd < Pt

49. Correct trend of first ionisation energy in group-13 is:

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

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

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

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

50. Which of the following EA order is not correct?

(1) B < Al < C < Si (2) Mg < C < S < F

(3) O < F < S < Cl (4) N < C < Si < S

51. Which of the following is the most basic oxide?

(1) SeO_2 (2) Al_2O_3

(3) Sc_2O_3 (4) Bi_2O_3

52. Considering the elements B, C, N, F and Si, the correct order of their non-metalic character is

(1) B > C > Si > N > F

(2) Si > C > B > N > F

(3) F > N > C > B > Si

(4) F > N > C > Si > B

53. Considering the elements F, Cl, O and N, the correct order of their chemical reactivity in terms of oxidizing property is

(1) F > Cl > O > N (2) F > O > Cl > N

(3) Cl > F > O > N (4) O > F > N > Cl

54. Electronic configurations of some elements are given in column I and their electron gain enthalpies are given in column II. Match the electronic configuration with electron gain enthalpy.

Column (I) Electronic Configuration	Column (II) Electron gain enthalpy/kJ mol^{-1}
(i) $1s^2\ 2s^2\ 2p^6$	(A) –53
(ii) $1s^2\ 2s^2\ 2p^6\ 3s^1$	(B) –328
(iii) $1s^2\ 2s^2\ 2p^5$	(C) –141
(iv) $1s^2\ 2s^2\ 2p^4$	(D) +48

(1) i → D, ii → A, iii → B, iv → C

(2) i → A, ii → B, iii → C, iv → D

(3) i → D, ii → B, iii → A, iv → C

(4) i → D, ii → C, iii → A, iv → B

55. In which of the following options order of arrangement does not agree with the variation of property indicated against it?

(1) $Al^{3+} < Mg^{2+} < Na^{+} < F^{-}$ (increasing ionic size)

(2) B < C < N < O (increasing first ionisation enthalpy)

(3) I < Br < F < Cl (increasing electron gain enthalpy)

(4) Li < Na < K < Rb (increasing metallic radius)

56. The process requiring the absorption of energy is:

(1) $F \longrightarrow F^{-}$ (2) $H \longrightarrow H^{-}$

(3) $Cl \longrightarrow Cl^{-}$ (4) $O \longrightarrow O^{2-}$

57. Select the correct order of ionic radii:

(1) $Ti^{2+} > Ti^{3+} > Ti^{4+}$ (2) $Ti^{4+} > Ti^{2+}$

(3) $Ti^{3+} > Ti^{2+} > Ti^{4+}$ (4) $Ti^{4+} > Ti^{3+} > Ti^{2+}$

58. Europium belongs to :

(1) s-block (2) p-block

(3) d-block (4) f-block

59. The ionic radius of Cr is minimum in which of the following compounds ?

(1) CrF_3 (2) $CrCl_3$

(3) Cr_2O_3 (4) K_2CrO_4

60. Which of the following is/are Doberiners triad-

(i) P, As, Sb (ii) Cu, Ag, Au

(iii) Fe, Co, Ni (iv) S, Se, Te

Correct answer is -

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

(3) (i) and (iv) (4) All

61. First, second and third IP values are 100eV, 150eV and 1500eV. Element can be :-

(1) Be (2) B

(3) F (4) Na

62. The increasing thermal stability of the hydrides of group 16 following the sequence :-

(1) H_2O, H_2S, H_2Se, H_2Te

(2) H_2Te, H_2Se, H_2S, H_2O

(3) H_2S, H_2O, H_2Se, H_2Te

(4) H_2Se, H_2S, H_2O, H_2Te

63. Group number and valency has no relation in?

(1) Zero group (2) First group

(3) IIIrd group (4) VII group

64. Order of atomic radius is correct of the elements given below ?

(1) $Fe \simeq Co \simeq Ni$ (2) Ni > Co > Fe

(3) Co > Ni > Fe (4) Co > Fe > Ni

65. Which pair show less similarity in their properties than the other three :-

(1) Li–Mg (2) Be–Al

(3) Na–Ca (4) B–Si

66. Element 'X' having electronic configuration $1s^2$ $2s^2$ $2p^6$ $3s^2$ $3p^3$ forms compound with Ca. The compound is :-

(1) Ca_2X_3 (2) Ca_3X

(3) Ca_3X_2 (4) CaX

67. Which of the following in increasing order of paramagnetism ?

(1) Al < Mg < O < N (2) Mg < Al < N < O

(3) Mg < Al < O < N (4) N < O < Al < Mg

68. Set containing isoelectronic species is :-

(1) C_2^{2-}, NO^{+}, CN^{-}, O_2^{2+}

(2) CO, NO, O_2, CN

(3) CO_2, NO_2, O_2, N_2O_5

(4) CO, CO_2, NO, NO_2

69. The correct order of second ionization potential of C, N, O and F is :-

(1) C > N > O > F (2) O > N > F > C

(3) O > F > N > C (4) F > O > N > C

70. The correct values of ionization enthalpies (in kJ mol^{-1}) of Si, P, Cl and S respectively are:-

(1) 786, 1012, 999, 1256

(2) 1012, 786, 999, 1256

(3) 786, 1012, 1256, 999

(4) 786, 999, 1012, 1256

71. On the Pauling's electronegativity scale, which element is next to F.

(1) Cl (2) O (3) Br (4) Ne

72. Which of the following sequence regarding the first ionisation potential of coinage metal is correct?
(1) Cu > Ag > Au (2) Cu < Ag < Au
(3) Cu > Ag < Au (4) Ag > Cu < Au

73. The size of the following species increases in the order :-
(1) $Mg^{2+} < Na^{+} < F^{-} < Al$
(2) $F^{-} < Al < Na^{+} > Mg^{2+}$
(3) $Al < Mg^{2+} < F^{-} < Na^{+}$
(4) $Na^{+} < Al < F^{-} < Mg^{2+}$

74. Which is not correct order for the stated property?
(1) Ba > Sr > Mg : Atomic radius
(2) F > O > N : First ionisation energy
(3) Cl > F > I : Electron affinity
(4) O > Se > Te : Electronegativity

75. In which of the following arrangements, the sequence is not strictly according to the property written against it ?
(1) $CO_2 < SiO_2 < SnO_2 < PbO_2$: increasing oxidising power
(2) HF < HCl < HBr < HI : increasing acid strength
(3) $NH_3 < PH_3 < AsH_3 < SbH_3$: increasing Lewis basic strength
(4) B < C < O < N : increasing first ionisation enthalpy

76. The atomic radius of elements of which of the following series would be nearly the same :-
(1) Na, K, Rb, Cs (2) Li, Be, B, C
(3) Fe, Co, Ni, Cu (4) F, Cl, Br, I

77. What is the total number of valence electrons in the peroxydisulphate, $S_2O_8^{2-}$, ion ?
(1) 58 (2) 60
(3) 62 (4) 64

78. Which of the following electronic configuration would be associated with the highest spin only magnetic moment ?
(1) d^2 (2) d^4
(3) d^5 (4) d^7

79. In which pair do both speices have the same electronic configuration ?
(1) Se^{2-}, Kr (2) Mn^{2+}, Cr^{3+}
(3) Na^{+}, Cl^{-} (4) Ni, Zn^{2+}

80. Comment on the E.N. of Sb in SbF_3 and SbF_5:-
(1) E.N. of Sb (SbF_3) > E.N. of Sb (SbF_5)
(2) E.N. of Sb (SbF_3) < E.N. of Sb (SbF_5)
(3) E.N. of Sb is identical in both cases
(4) No comment can be predicted

PERIODIC TABLE

ANSWER KEY

Que.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Ans.	**2**	**1**	**3**	**1**	**1**	**1**	**3**	**3**	**3**	**2**	**3**	**4**	**3**	**4**	**4**
Que.	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
Ans.	**4**	**1**	**2**	**4**	**3**	**2**	**2**	**2**	**4**	**3**	**2**	**2**	**3**	**2**	**2**
Que.	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45
Ans.	**2**	**4**	**3**	**3**	**2**	**1**	**2**	**3**	**2**	**2**	**2**	**4**	**4**	**4**	**2**
Que.	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60
Ans.	**4**	**1**	**1**	**3**	**3**	**4**	**3**	**2**	**1**	**2**	**4**	**1**	**4**	**4**	**3**
Que.	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75
Ans.	**1**	**2**	**4**	**1**	**3**	**3**	**3**	**1**	**3**	**3**	**2**	**3**	**1**	**2**	**3**
Que.	76	77	78	79	80										
Ans.	**3**	**3**	**3**	**1**	**2**										