DEVELOPMENT OF PERIODIC TABLE

1. Mendeleev's periodic table is based on:-
(1) Atomic number
(2) Increasing order of number of protons
(3) Electronic configuration
(4) None of the above

2. Which of the following is/are Dobereiners triad:-
(a) P, As, Sb   (b) Cu, Ag, Au
(c) Fe, Co, Ni   (d) S, Se, Te
Correct answer is :- ·
(1) a and b   (2) b and c   (3) a and d   (4) All

3. Which of the following sets of elements follows Newland's octave rule :-
(1) Be, Mg, Ca   (2) Na, K, Rb
(3) F, Cl, Br   (4) B, AL, Ga

4. Which are correct match:-
(a) Eka silicon - Be   (b) Eka aluminium - Ga
(c) Eka manganese - Tc   (d) Eka scandium - B
(1) b, c   (2) a, b, d   (3) a, d   (4) All

5. Atomic wt. of P is 31 and Sb is 120. What will be the atomic wt. of as, as per Dobereiners triad rule:-
(1) 151   (2) 75.5   (3) 89.5   (4) Unpredictable

6. The places that were left empty by Mendeleev's were, for:-
(1) Aluminium & Silicon   (2) Galium and germinium
(3) Arsenic and antimony   (4) Molybdenum and tungstun

7. Which is not anomalous pair of elements in the Mendeleev's periodic table:-
(l) Ar and K   (2) Co and Ni
(3) Te and I   (4) Al and Si

8. The law of triads is applicable to :-
(1) Os, Ir, Pt   (2) Ca, Sr, Ba
(3) Fe, Co, Ni   (4) Ru, Rh, Pt

9. Elements which occupied position in the other meyer curve, on the peaks, were:-
(1) Alkali metals
(2) Highly electro positive elements
(3) Elements having large atomic volume
(4) All

10. In a period the elements are arranged in :

(1) Decreasing order of nuclear charge

(2) Decreasing order of No. of electrons

(3) Increasing order of nuclear charge

(4) In order of same nuclear charge

11. Which of the following statement is wrong :

(1) No inert gas is present in 7th period

(2) 3rd periodcontains 18 elements

(3) 1st period contains two non metals

(4) In p-block, metal, nonmetal and metalloids are present

12. Which of the following element was absent in the Mendeleev's periodic table:-

(1) Tc   (2) Si   (3) B   (4) F

13. IUPAC name of the element placed just after actinide series :-

(1) Unniltrium   (2) Unnilpentilium

(3) Unnilquadium   (4) Ununbium

14. Which statement is wrong for the long form of periodic table:-

(1) Number uf periods are 7 and groups 18

(2) No. of valence shell electrons in a period are, same

(3) III B group contains 32 elements

(4) Lanthanides and actinides are placed in same group

15. The elements which.· are cited as an example to proove the validity of mendeleev's periodic low are

(1) H, He   (2) Ga, Sc   (3) Co, Ni   (4) Zr, Hf

16. Which pair of successive elements follows increasing order of at6mic weight in mendeleev's periodic table.

(1) Argon and potassium   (2) Lithium and Beryilium

(3) Cobalt and nickel   (4) Tellurium and iodine

17. Which of the following statement is false :-

(1) Elements of ns^2np^6 electronic configuration lies in 1st to 6th period

(2) Typical elements lies in 3rd period

(3) The seventh period will accommodate thirty two elements

(4) Boron and silicon are diagonally related

18. Among the Lanthanides the one obtained by synthetic method is :-

(1) Lu   (2) Pm   (3) Pr   (4) Ce

PERIOD, GROUP AND BLOCK

19. Which of the following set of elements belongs to same period :

(1) Zn, Cd, Hg   (2) Fr, Ra, U   (3) K, Ca, Ag   (4)None

20. The element with atomic number Z = 115 will be placed in:-

(1) 7th period, IA group   (2) 8th period, NA group

(3) 7th period, VA group   (4) 6th period, VB group

21. Elements upto atomic no. 112 have been discovered till now. What will be the electronic configuration of the element possessing atomic no 108 :-
(1) $[Rn]5f^{l4} 6d^6 7s^2$
(2) $6f^{14} 7d^8 7^2$
(3) $[Rn] 5f^{14} 6d^8 7s^0$
(4) $[Xe] 4f^{14} 5d^8 6s^2$

22. In 6th period of the modern periodic table, electronic energy levels are in the order
(1) 6s, 4f, 5d, 6p
(2) 6s, 6p, 4f, 5d
(3) 4f, 5d, 6s, 6p
(4) None

23. Out of first 100 elements no. of elements having electrons in 3d orbital (in their complete electronic configuration) are :-
(1) 80
(2) 100
(3) 40
(4) 60

24. The IUPAC name of the· element which is placed after Db_{105} is the periodic table, will be :-
(1) Un nil pentium
(2) Un un nilium
(3) Un nil hexium
(4) Un nil quadium

25. The element with the electronic configuration $ns^2(n–1)s^2p^6d^0(n–2)s^2p^6d^{10}f^7$ lies in the :-
(1) s- block
(2) p - block
(3) d - block
(4) f - block

26. The element with atomic number Z= 118 will be :
(1) Noble gas
(2) Transition metal
(3) Alkali metal
(4) Alkaline earth metal

27. The atom having the valence shell electronic configuration $4s^2 4p^2$ would be in:-
(1) Group II A and period 3
(2) Group II B and period 4
(3) Group N A and period 4
(4) Group N A and period 3

28. The electronic configuration of d-block elements is exhibited by :-
(1) $ns^{1–2}(n–1)d^{1–10}$
(2) $ns^2 (n–1) d^{10}$
(3) $(n–1)d^{10}s^2$
(4) ns^2np^5

29. The electronic configuration of the element with atomic number 109 if discovered will be:-
(1) $(n–1)d^7ns^2$
(2) $(n–1)d^9ns^2$
(3) nd^7ns^2
(4) $(n–1)d^5ns^2np^2$

30. The element having electronic configuration $4f^{14}5d^06s^2$ belongs to :-
(1) d-block, 12th group
(2) f-block, III B group
(3) f-block, 14th group
(4) s-block, 2nd group

31. Element with the electronic configuration given below, belong to which group in the periodic table $1s^2, 2s^22p^6, 3s^23p^63d^{10}, 4s^24p^64d^{10}, 5s^25p^3$
(1) 3rd
(2) 5th
(3) 15th
(4) 17th

32. $4d^35s^2$ configuration belongs to which group :- .
(1) II A
(2) II B
(3) VB
(4) III B

33. Which of the. following electronic configuration belongs to inert gas elements :-
(1) $ns^2 (n–1)d^{10}$
(2) $ns^2 (n–1)s^2p^6$
(3) ns^2np^6
(4) None

34. From atomic number 58 to 71, elements are placed in:-
(1) 5th period and III A group
(2) 6th period and III B group
(3) Separate period and group
(4) 7th period and. N B group

35. True statement is :-
(1) All the transuranic elements are synthetic elements
(2) Elements of third group are called bridge elements
(3) Element of $1s^2$ configuration is placed in II A group
(4) Electronic configuration of elements of a group is same

36. Elements having $ns^2 np^6$ valence shell electronic configuration lies in :-
(1) '0' gp. and 1st–7th period
(2) 18th gp. and 2nd–6th period
(3) 18th gp. and 1st–6th period
(4) All are correct

37. Which of the following match is correct:-
(1) Last natural element - Uub
(2) General electronic configuration of IA group - ns^2
(3) Inert gas elements lies in 2nd – 6th period
(4) Typical elements- 3rd period elements

38. The electronic configuration of elements X and Z are $1s^2 2s^2 2p^6 3s^2 3p^5$ and $1s^2 2s^2 2p^5$ respectively. What is the position of element X with respect to position of Z in the periodic table -
(1) Just below Z
(2) Just above Z
(3) Left to the Z
(4) right to the Z

39. Which of the following sequence contains atomic number of only representative elements
(1) 55, 12, 18, 53
(2) 13, 33, 54, 83
(3) 3, 33, 53, 87
(4) 22, 33, 55, 66

40. Uranium (At No. - 92) is the last natural element in the periodic table. The last element of the periodic table which is recently discovered is Uub. What will be the total number of transuranic elements in the periodic table :-
(1) 21
(2) 20
(3) 11
(4) 12

41. Which-two elements are in same period as well as same group of modem periodic table :-
(1) $Z = 23, Z = 31$
(2) $Z = 65, Z = 66$
(3) $Z = 52, Z = 87$
(4) $Z = 58, Z = 46$

42. Which of the following statement is not correct for given electronic configuration
$1s^2, 2s^2 2p^6, 3s^2 3p^6 3d^{10}, 4s^2 4p^6 4d^{10} 4f^{14}, 5s^2 5p^6 5d^{10}, 6s^2$
(1) It belongs to IIB group and 6th period
(2) It is liquid at room temperature
(3) It is a transition element
(4) It is not used in high temperature thermometer

43. General electronic configuration of outermost and penultimate shell is $(n–1) s^2 (n–1)p^6(n–1)d^x ns^2$. If $n = 4$ and $x = 5$, then number of protons in the nucleus will be :-
(1) > 25   (2) < 24   (3) 25   (4) 30

44. An ion M^{+3} has electronic configuration $[Ar]3d^{10} 4s^2$ element M belongs to :-
(1) s-block   (2) p-block   (3) d-block   (4) f-block

45. What is the atomic number of element having maximum number of unpaired e^- in 4p subshell:-
(1) 33   (2) 17   (3) 53   (4) 15

Z_{eff}, SCREENING CONSTANT & ATOMIC RADIUS

46. The formula for effective nuclear charge is (if σ is screening constant)
(1) $Z – \sigma$ (2) $Z + \sigma$ (3) $Z \sigma^{-1}$ (4) $Z \sigma$

47. According to Slater rule, Effective nuclear charge in group generally :-
(1) Increases down the group   (2) Decreases down the group
(3) Remains constant   (4) First increases than decreases

48. In sodium atom the screening is due to :-
(1) $3s^2, 3p^6$ (2) $2s^1$ (3) $1s^2, 2s^2, 2p^6$ (4) $1s^2, 2s^2$

49. If the difference in atomic size of :
Na – Li = x; Rb – K = y; Fr – Cs = z
Then correct order will be:-
(1) $X = y = Z$ (2) $X > y > Z$ (3) $X < y < Z$ (4) $X < y \ll Z$

50. The correct order of size would be:-
(1) $Ni < Pd \propto Pt$ (2) $Pd < Pt < Ni$
(3) $Pt > Ni > Pd$ (4) $Pd > Pt > Ni$

51. Which of the following order of radii is correct
(1) $Li < Be < Mg$ (2) $H^+ < Li^+ < H^-$
(3) $O < F < Ne$ (4) $Na^+ > F^- > O^{-2}$

52. K^+, Ar, Ca^{2+} and S^{2-} contains -
(1) Same electronic configuration and atomic volume
(2) Different electronic configuration but same IP.
(3) Same electronic configuration but different atomic volume
(4) None

53. Which of the following is not isoelectronic series :-
(1) Cl^-, P^{3-}, Ar   (2) N^{3-}, Ne, Mg^{+2}
(3) B^{+3}, He, Li^+ (4) N^{3-}, S^{2-}, Cl^{-8}

54. Which group of atoms have nearly same atomic radius:-
(1) Na, K, Rb, Cs   (2) Li, Be, B, C
(3) Fe, Co, Ni   (4) F, Cl, Br, I

55. Atomic radii of Fluorine and Neon in Angstrom units are given by :
(1) 0.72, 1.60
(2) 1.60, 1.60
(3) 0.72, 0.72
(4) None of these

56. Which of the following has largest radius :-
(1) $1s^2\,2s^2\,2p^6\,3s^2$
(2) $1s^2\,2s^2\,2p^6\,3s^2\,3p^1$
(3) $1s^2\,2s^2\,2p^6\,3s^2\,3p^3$
(4) $1s^2\,2s^2\,2p^6\,3s^2\,3p^5$

57. Which of the following order of atomic/ionic radius is not correct :-
(1) $I^- > I > I^+$
(2) $Mg^{+2} > Na^+ > F^-$
(3) $P^{+5} < P^{+3}$
(4) $Li > Be > B$

58. In the lithium atom screening effect of valence shell electron is caused by-
(1) Electrons of K and L shell
(2) Electrons of K shell
(3) Two electrons of 1st and one of 2nd shell
(4) None

59. Correct order of ionic radii is
(1) $Ti^{4+} < Mn^{7+}$
(2) $37Cr^- < 35Cl^-$
(3) $K^+ > Cl^-$
(4) $P^{3+} > P^{5+}$

60. The radius of potassium atom is 0.203 nm. The radius of the potassium ion in nanometer will be :-
(1) 0.133
(2) 0.231
(3) 0.234
(4) 0.251

61. S^{-2} is not isoelectronic with :-
(1) Ar
(2) Cl^-
(3) HS^-
(4) Ti^{+3}

62. The best reason to account for the general tendency of atomic diameters to decrease as the atomic numbers increase within a period of the periodic table is the fact that
(1) Outer electrons repel inner electrons
(2) Closer packing among the nuclear particles is achieved
(3) The number of neutrons increases
(4) The increasing nuclear charge exerts a greater attractive force on the electrons

63. In an anion:-
(1) Number of proton decreases
(2) Protons are more than electrons
(3) Effective nuclear charge is more
(4) Radius is larger than neutral atom

64. Maximum size of first member of a period is due to
(1) Maximum number of shells
(2) Maximum screening effect
(3) Minimum Z_{eff}
(4) All

65. Which of the following. ion has largest size :
(1) F
(2) Al^{+3}
(3) Cs^+
(4) O^{-2}

66. In which of the following pair radii of second species is smaller than that of first species :-

(1) Li, Na   (2) Na^+, F^- (3) N^{-3}, Al^{+3} (4) Mn^{+7}, Mn^{+4}

67. Spot the incorrect order of atomic radii :-
(1) $r_{Cu > Zn}$ (2) $r_{Cl > F}$ (3) $r_{P > S}$ (4) $r_{Sc > Ti}$

68. Which of the following orders of atomic radii are correct :-
(a) $Li < Be < Na$ (b) $Ni < Cu < Zn$
(c) $Ti > V > Cr$ (d) $Ti > Zr \propto Hf$
Correct answer is :.
(1) All   (2) a, b   (3) b, c   (4) b, d

69. Which electronic configuration of an atom is smallest in size :-
(1) $3s^2$ (2) $3s^2 3p^3$
(3) $3s^1$ (4) $3s^2 3p_x^2 3p_{xy}^2 3p_z^1$

70. Decreasing order of size of ions is :
(1) $Br^- > S^{-2} > Cl^- > N^{-3}$ (2) $N^{3-} > S^{-2} > Cl^- > Br^-$
(3) $Br^- > Cl^- > S^{-2} > N^{-3}$ (4) $N^{-3} > Cl^- > S^{-2} > Br^-$

71. Which of the following statement is wrong
(1) According to Slater, Z_{eff} in group remains constant
(2) In a period atomic size decreases
(3) Screening effect in a period remains constant
(4) In a period atomic radius of inert gas element is maximum

72. The covalent and vander Waal's radii of hydrogen respedtively are :-
(1) 0.37Å, 0.8 Å   (2) 0.37 Å, 0.37Å
(3) 0.8 Å, 0.8 Å   (4) 0.8 Å, 0.37 Å

73. Which of the following sequence is correct for decreasing order of ionic radius :-
(1) Se^{-2} I^- B^- O^{-2} F^- (2) I^-, Se^{-2} O^{-2}, Br^-, F^-
(3) Se^{-2}, I^-, Br^-, F^-, O^{-2} (4) I^-, Se^{-2}, Br^-, O^{-2}, F^-

74. Elemept having maximum number of low shielding electrons:-
(1) $[Xe]$ $4f^{l4}$, $5d^{10}$, $6s^2$, $6p^2$ (2) $[Rn]5f^{14}$, $6d^1$, $7s^2$
(3) $[Ar]$ $3d^{10}$, $4s^2$ (4) $[Ne]$ $3s^2$, $3p^1$

75. Incorrect order .of ionic radlus is :
(1) $La^{+3} > Gd^{+3} > Eu^{+3} > Lu^{+3}$ (2) $V^{+2} > V^{+3} > V^{+4} > V^{+5}$
(3) $In^+ > Sn^{+2} > Sb^{+3}$ (4) $K^+ > Sc^{+3} > V^{+5} > Mn^{+7}$

76. According to Slater's rule, order of effective nuclear charge for last electron in case of U, Na and K :-
(1) $Li > Na > K$ (2) $K > Na > Li$ (3) $Na > Li > K$ (4) $Li < Na = K$

77. Rank the 4p, 4d and 4f orbitals of increasing order in which the electrons present In them are shielded by inner electrons
(1) $4d < 4f < 4p$ (2) $4f < 4d < 4p$

(3) $4p < 4d < 4f$ (4) $4d < 4p < 4f$

IONISATION POTENTIAL

78. Correct order of 1st I.P. are:
(a) $Li < B < Be < C$ (b) $O < N < F$ (c) $Be < N < Ne$
(1) a, b   (2) b, c   (3) a, c   (4) a, b, c

79. The ionisation potential of isotopes of an element will be :-
(1) Same   (2) Different
(3) Depends on atomic masses   (4) Depends on number· of neutrons

80. The second ionisation potentials in electron volts of oxygen and fluorine atoms are respectively given by:-
(1) 35.1, 38.3   (2) 38.3, 38.3   (3) 38.3, 35.1   (4) 35.1, 35.1

81. A sudden large jump between the values of 2nd and 3rd IP of an element would he associated with the electronic configuration:-
(1) $1s^2, 2s^2 2p^6, 3s^1$ (2) $1s^2, 2s^2 2p^6, 3s^2 3p^5$
(3) $1s^2, 2s^2 2p^6, 3s^2 3p^2$ (4) $1s^2, 2s^2 2p^6 3s^2$

82. Compared to the first ionisation potential, the value of second ionisation potential of an element is :-
(1) Negligible   (2) Smaller   (3) Greater   (4) Double

83. In which of the following pairs, the ionization energy of the first species is less than that of the second :-
(1} O^-, O^{2-} (2) S, P   (3) N, P   (4) Be^+, Be

84. The correct order of stability of Al^+, Al^{+2}, Al^{+3} is:-
(1) $Al^{+3} > Al^{+2} > Al^+$ (2) $Al^{+2} > Al^{+3} > Al^+$
(3) $Al^{+2} < Al^+ > Al^{+3}$ (4) $Al^{+3} > AI^+ > Al^{+2}$

85. Least ionisation potential will be of :-
(1) Be^{3+} (2) H   (3) Li^{+2} (4) He^+

86. Ionisation energy increases in the order :-
(1) Be, B, C, N   (2) B, Be, C, N   (3) C, N, Be, B   (4) N, C, Be, B

87. Mg forms Mg(II) because of :-
(1) The oxidation state of Mg is $+ 2$
(2) Difference between $I.P_1$ and $I.P_2$ is greater than 16.0 eV
(3) There is only one electron in the outermost energy level of Mg
(4) Difference between I.P1 and I.P2 is less than 11 eV

88. Minimum first ionisation energy is shown by which electronic configuration:-
(1) $1s^2 2s^2 2p^5$ (2) $1s^2 2s^2 2p^6 3s^2 3p^2$

(3) $1s^2 \, 2s^2 \, 2p^6 \, 3s^1$ (4) $1s^2 \, 2s^2 \, 2p^6$
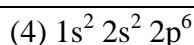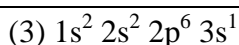
89. With reference to ionisation potential which one of the following set is correct :-
(1) Li > K > B   (2) B > U > K   (3) Cs > Li > K   (4) Cs < Li < K

90. Successive ionisation energies of an element 'X' are given below (in K. Cal)
IP_1 IP_2 IP_3 IP_4
165   195   556   595
Electronic configuration of the element 'X' is:-
(1) $1s^2, \, 2s^2 2p^6, \, 3s^2 \, 3p^2$ (2) $1s^2, \, 2s^1$
(3) $1s^2, \, 2s^2 2p^2$ (4) $1s^2, \, 2s^2 2p^6, \, 3s^2$

91. Second IP of which of the element is maximum-
(1) Lithium   (2) Oxygen   (3) Nitrogen   (4) Fluorine

92. The energy needed to remove one electron from unipositive ion is abbreviated as:-
(1) 1st I.P.   (2) 3rd I.P.   (3) 2nd I.P.   (4) 1st E.A.

93. Among the following elements (Whose electronic configuration is given below) the one having the highest ionisation energy is
(1) [Ne] $3s^2 \, 3p^3$ (2) [Ne] $3s^2 3p^4$
(3) [Ne] $3s^2 3p^5$ (4) [Ar] $3d^{10} 4s^2 4p^2$

94. The correct order of decreasing first ionisation energy is :-
(1) Si > Al > Mg > Na   (2) Si > Mg > Al > Na
(3) Al > Si > Mg > Na   (4) Mg > Li > Al > Si

95. Out of Na^+, Mg^{+2}, O^{-2} and N^{-3}, the pair of species showing minimum and maximum IP would be.
(1) Na^+, Mg^{+2} (2) Mg^{+2}, N^{-3} (3) N^{-3}, Mg^{+2} (4) O^{-2}, N^{-3}

96. The element having highest I.P. in the from of two series C, N, O and Si, P, S :-
(1) P   (2) N   (3) S   (4) O

97. Lowest IP will be shown by the element having the configuration:-
(1) [He] $2s^2$ (2) $1s^2$ (3) [He] $2s^2 \, 2p^2$ (4) [He] $2s^2 \, 2p^5$

98. The strongest reducing agent among the following is:-
(1) Na   (2) Mg   (3) Al   (4) K

99. Which ionisation potential (IP) in the following equations involves the greatest ammount of energy:-
(1) $K^+ \rightarrow K^{+2} + e^-$ (2) $Li^+ \rightarrow Li^{+2} + e^-$ (3) $Fe \rightarrow Fe^+ + e^-$ (4) $Ca^+ \rightarrow Ca^{+2} + e^-$

100. Values of first four ionisation potential of an elements are 68, 370, 400, 485. It belongs to which of the following electronic configuration:-
(1) $1s^2 \, 2s^1$ (2) $1s^2 \, 2s^2 \, 2p^1$ (3) $1s^2 \, 2s^2 \, 2p^6 \, 3s^1$ (4) (1) and (3) both

101. (a) $M^-_{(g)} \rightarrow M_{(g)}$ (b) $M_{(g)} \rightarrow M^+_{(g)}$

(c) $M^+_{(g)} \to M^{+2}_{(g)}$ (d) $M^{+2}_{(g)} \to M^{+3}_{(g)}$
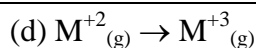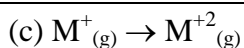
Minimum and maximum I.P. would be of :-
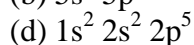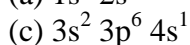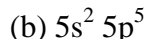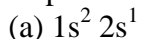
(1) a, d   (2) b, c   (3) c, d   (4) d, a

102. Which of the following electronic configuration belongs to least and most metallic character respectively:-

(a) $1s^2\, 2s^1$ (b) $5s^2\, 5p^5$

(c) $3s^2\, 3p^6\, 4s^1$ (d) $1s^2\, 2s^2\, 2p^5$

(1) a, b   (2) d, c   (3) b, a   (4) c, d

103. Triad - I $[N^{3-}, O^{-2}, Na^+]$

Triad - II $[N^+, C^+, O^+]$

Choose the speeds of lowest IP from 1riad-I and highest IP from triad-II respectively

(1) N^{3-}, O^+ (2) Na^+, C^+ (3) N^{3-}, N^+ (4) O^-, C^+

104. The correct values of ionisation energies (in kJ mol^{-1}) of Be, Ne, He and N respectively are
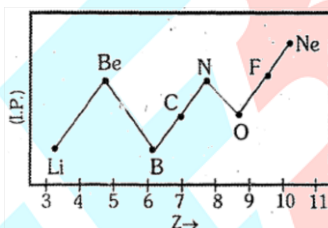
(1) 786, 1012, 999, 1256   (2) 1012, 786, 999, 1256

(3) 786, 1012, 1256, 999   (4) 786, 999, 1012. 1256

105. Following graph shows variation of I.P. with atomic number in second period (Li – Ne). Value of I.P. of Na (11) will be :-

(1) Above Ne   (2) Below Ne but above O

(3) Below Li   (4) Between N and O

106. Which one of the following has highest ionization potential :-

(1) Li^+ (2) Mg^+ (3) He   (4) Ne

107. In which of the following pairs, the ionization energy of the first species is less than that of the second

(1) N, P   (2) Be^+, Be   (3) N, N^- (4) Ne, Ne^+

108. Consider the following ionisation reactions

$A(g) \to A^+_{(g)} + e^-$ IE in (KJ/mol) is A_1

$A^+_{(g)} \to A^{+2}_{(g)} + e^-$ IE in (KJ/mol) is A_2

$A^{+2}_{(g)} \to A^{+3}_{(g)} + e^-$ IE in (KJ/mol) is A_3

then correct order of IE is· :-

(1) $A_1 > A_2 > A_3$ (2) $A_1 = A_2 = A_3$

(3) $A_1 < A_2 < A_3$ (4) $A_3 = A_2 < A_1$

109. IE$_1$ IE$_2$ and IE$_3$ of an element are 10 eV, 15 eV, 45 eV respectively, the most stable oxidation state of the element will be :-

(1) +1   (2) +2   (3) +3   (4) +4

110. Select the correct order of I.E. :-
(1) $Cl^- > Cl > Cl^+$
(2) $Cl^+ > Cl > Cl^-$
(3) $Cl > Cl^+ > Cl^-$
(4) $Cl^- > Cl^+ > Cl$

ELECTRON AFFINITY

111. In the process $Cl_{(g)} + e^- \xrightarrow{\Delta H} Cl^-(g)$, ΔH is
(1) Positive
(2) Negative
(3) Zero
(4) None

112. Process in which maximum energy is released:
(1) $O \to O^{-2}$
(2) $Mg^+ \to Mg^{+2}$
(3) $Cl \to Cl+$
(4) $F \to F^-$

113. Which of the following is energy releasing process
(1) $x^- \to X(g) + e^-$
(2) $O^-(g) + e^- \to O^{2-}$
(3) $O(g) \to O^+(g) + e^-$
(4) $O(g) + e^- \to O^-(g)$

114. In which of the following process energy is liberated :-
(1) $Cl \to Cl^+ + e$
(2) $HCl \to H^+ + Cl^-$
(3) $Cl + e \to Cl^-$
(4) $O^- + e \to O^{-2}$

115. Element of which atomic number has highest electron affinity:- ·
(1) 35
(2) 17
(3) 9
(4) 53

116. The electron affinity
(1) Of carbon is greater than oxygen
(2) Of fluorine is less than iodine
(3) Of fluorine is less than chlorine
(4) Of sulphur is less than oxygen

117. Which of the following element will form most stable bivalent anion.
(1) Fluorine
(2) Oxygen
(3) Chlorine
(4) Nitroyen

118. Energy absorbed in second electron addition in an atom is called.
(l) 1^{st}IP
(2) 2^{nd}EA
(3) 1^{st}EA
(4) 2^{nd}IP

119. The amount of energy released for the process $X_{(g)} + e^- \to X^-_{(g)}$ is minimum and maximum respectively for :-
(a) F
(b) Cl
(c) N
(d) B
Correct answer is :
(1) c & a
(2) d & b
(3) a & b
(4) c & b

120. Which of the following electronic configuration is expected to have highest electron affinity:-
(1) $2s^2 2p^0$
(2) $2s^2 2p^2$
(3) $2s^2 2p^3$
(4) $2s^2 2p^1$

121. Consider the following conversions
(i) $O(g) + e^- \to O^-(g)$; ΔH_1
(ii) $F(g) + e^- \to F^-(g)$; :ΔH_2
(iii) $Cl(g) + e^- \to Cl_2(g)$; ΔH_3
(iv) $Na(g) \to Na^+(g)$; ΔH_4

incorrect statement is :- .
(1) ΔH_1 and ΔH_2 is less negative than ΔH_3
(2) ΔH_2 is more negative than ΔH_1
(3) ΔH_2 , ΔH_3 are negative while ΔH_1 is positive
(4) ΔH_1 , ΔH_2 and ΔH_3 are negative while ΔH_4 is positive ·

122. In which of the following process, least energy is required :- ·
(1) $F^-_{(g)} \rightarrow F_{(g)} + e^-$ 　　　　　　　　(2) $P^-_{(g)} \rightarrow P(g) + e^-$
(3) $s^-_{(g)} \rightarrow S_{(g)} + e^-$ 　　　　　　　　(4) $Cl^-_{(g)} \rightarrow Cl^-_{(g)} + e^-$

<table>
<tr><td colspan="2" align="center">**ELECTRONEGATIVITY**</td></tr>
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123. The correct set of decreasing order of electronegativity is :
(1) Li, H, Na 　　　(2) Na, H, Li 　　　(3) H, Li, Na 　　　(4) Li, Na, H

124. Polarity of a bond can be explained by :-
(1) Electron affinity 　　　　　　　　(2) Ionisation potential
(3) Electronegativity 　　　　　　　　(4) All of the above

125. Electronegativity values for elements are useful in predicting :-
(1) Bond energy of a molecule 　　　　(2) Polarity of a bond
(3) Nature of an oxide 　　　　　　　(4) All

126. Mulliken scale of electronegatlvity uses the concept of :-
(1) E. A. and EN of pauling 　　　　　(2) E. A. and atomic size
(3) E.A and I.P. 　　　　　　　　　　(4) E.A. and bond energy

127. The pair with minimum difference in electronegativity is :-
(1) F, Cl 　　　(2) C, H 　　　(3) P, H 　　　(4) Na, Cs

128. Least electronegative element is:-
(1) I 　　　　(2) Br 　　　　(3) C 　　　　(4) Cs

129. In which of the following pairs of elements the electronegativity of first element is less than that of second element :-
(1) Zr,-Hf 　　　(2) K, Rb 　　　(3) Cl, S 　　　(4) None of the above

130. The nomenclature of ICI is iodine chloride because
(1) Size of I < Size of Cl
(2) Atomic number of I > Atomic number of Cl
(3) E.N, of I < E.N. of Cl
(4) E. A. of I < E. A. of Cl

131. Among the following least and most polar bonds are respectively:-
(a) C – I 　　　(b) N – O 　　　(c) C – F 　　　(d) P – F
(1) d and c 　　(2) a and d 　　(3) b and d 　　(4) b and c

132. If the ionisation potential is IP, electron affinity is EA and electronegativity is X then which of the following relation is correct :-
(1) $2X – EA — IP = 0$ (2) $2EA – X – IP = 0$
(3) $2IP – X – EA = 0$ (4) All of the above

133. The properties which are not common to groups 1 and 1 7 elements in the periodic table are :-
(1) Electropositive character increases down the groups
(2) Reactivity decreases from top to bottom in these groups
(3) Atomic radii increases as the atomic number increases
(4) Electronegativity decreases on moving down the group

134. Electronegativity of an element can be measured using :-
(1) Pauling's scale (2) Mulliken's scale
(3) Both (4) None

135. As we proceed across the period in periodic table, we find there is a decrease in :-
(1) Ionisation energy (2) Electron affinity
(3) Electronegativity (4) Atomic radii

136. Which compound strongly absorb CO_2 ?
(1) BeO (2) K_2O (3) H_3PO_4 (4) P_4O_6

137. The electronegativities of the following elements:
H, O, F, Sand Cl increase inthe order :
(1) $H < O < F < S < Cl$ (2) $Cl < H < O < F < S$
(3) $H < S < O < Cl < F$ (4) $H < S < Cl < O < F$

138. Which of the following is different from other three oxides:-
(1) MgO (2) SnO (3) PbO (4) ZnO

ANSWER KEY

EXERCISE-I

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

106.	(1)	**107.**	(4)	**108.**	(3)	**109.**	(2)	**110.**	(2)	**111.**	(2)	**112.**	(3)
113.	(4)	**114.**	(3)	**115.**	(2)	**116.**	(3)	**117.**	(2)	**118.**	(2)	**119.**	(4)
120.	(2)	**121.**	(3)	**122.**	(2)	**123.**	(3)	**124.**	(3)	**125.**	(4)	**126.**	(3)
127.	(3)	**128.**	(4)	**129.**	(3)	**130.**	(1)	**131.**	(2)	**132.**	(1)	**133.**	(2)
134.	(3)	**135.**	(4)	**136.**	(2)	**137.**	(4)	**138.**	(1)				