*** Chemistry** **[600]**

1. Arrange the following elements in increasing order of electronegativity:
   N, O, F, C, Si
   Choose the correct answer from the options given below:
   (A) $Si < C < O < N < F$ (B) $O < F < N < C < Si$
   (C) $\mathrm{F < O < N < C < Si}$ (D) $Si < C < N < O < F$

2. Arrange the following elements in increasing order of first ionization enthalpy:
   $\mathrm{Li, Be, B, C, N}$
   Choose the correct answer from the options given below:
   (A) $\mathrm{Li < B < Be < C < N}$
   (B) $\mathrm{Li < Be < C < B < N}$
   (C) $\mathrm{Li < Be < N < B < C}$
   (D) $\mathrm{Li < Be < B < C < N}$

3. The $IUPAC$ name of an element with atomic number 119 is .....
   (A) unnilennium (B) unununnium (C) ununoctium (D) ununennium

4. Identify the incorrect match :

Name	$IUPAC$ Official Name
(a) Unnilunium	(i) Mendelevium
(b) Unniltrium	(ii) Lawrencium
(c) Unnilhexlum	(iii) Seaborglum
(d) Ununnnium	(iv) Darmstadtium

   (A) $(d), (iv)$ (B) $(a), (i)$ (C) (b), (ii) (D) $(c), (iii)$

5. For the second period elements the correct increasing order of first ionisation enthalpy is
   (A) $\mathrm{Li < Be < B < C < N < O < F < Ne}$
   (B) $\mathrm{L < B < Be < C < O < N < F < Ne}$
   (C) $\mathrm{Li < B < Be < C < N < O < F < Ne}$
   (D) $\mathrm{Li < Be < B < C < O < N < F < Ne}$

6. The element $Z = 114$ has been discovered recently. It will belong to which of the following family/group and electronic configuration?
   (A) Carbon family, $[Rn]\, 5f^{14}\, 6d^{10}\, 7s^2\, 7p^2$
   (B) Oxygen family, $[Rn]\, 5f^{14}\, 6d^{10}\, 7s^2\, 7p^4$

(C) Nitrogen family, $[Rn]\ 5f^{14}\ 6d^{10}\ 7s^2\ 7p^6$

(D) Halogen family, $[Rn]\ 5f^{14}\ 6d^{10}\ 7s^2\ 7p^5$

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

(A) $I < Br < Cl < F$ (increasing electron gain enthalpy)

(B) $Li < Na < K < Rb$ (increasing metallic radius)

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

(D) Both (a) and (c)

8. The process requiring the absorptionof energy is

(A) $F \rightarrow F^-$ (B) $H \rightarrow H^-$ (C) $Cl \rightarrow Cl^-$ (D) $O \rightarrow O^{2-}$

9. In which of the following process, energy is liberated :-

(A) $Cl \rightarrow Cl^+ + e^-$ (B) $HCl \rightarrow H^+ + Cl^-$

(C) $Cl + e \rightarrow Cl^-$ (D) $O^- + e \rightarrow O^{2-}$

10. Select the process in which least enthalpy change is associated :

(A) $O_{(g)} \rightarrow O^+_{(g)}$ (B) $O_{(g)} \rightarrow O^-_{(g)}$ (C) $O^+_{(g)} \rightarrow O^{2+}_{(g)}$ (D) $S_{(g)} \rightarrow S^-_{(g)}$

11. The first four ionisation energy values of an element are $191, 578, 872$ and $5962\ kcal$.The number of valence electron in the element is :-

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

12. Largest in size out of Na^+, Ne and F^- is

(A) Na^+ (B) F^- (C) Ne (D) all are equal

13. Ionic sizes increase in the order :-

(A) $Ca^{2+} < Cl^- < S^{2-} < Ar$

(B) $Ar < Ca^{2+} < Cl^- < S^{2-}$

(C) $Cl^- < Ca^{2+} < Ar < S^{2-}$

(D) $S^{2-} < Cl^- < Ca^{2+} < Ar$

14. Increasing order of atomic radii is

(A) $Mg^{2+} < Na^+ < Ne < F^- < O^{2-}$

(B) $Na^+ < Mg^{++} < Ne < F^- < O^{2-}$

(C) $O^{2-} < F^- < Ne < Na^+ < Mg^{2+}$

(D) $Ne < O^{2-} < F^- < Na^+ < Mg^{2+}$

15. In the isoelectronic species the ionic radii $\overset{o}{A}$ of N^{3-}, O^{2-} and F^- are respectively given by :-

(A) $1.36, 1.40, 1.71$ (B) $1.36, 1.71, 1.40$ (C) $1.71, 1.40, 1.36$ (D) $1.71, 1.36, 1.40$

16. In K^+F^- ionic radius of F^- is more while atomic radius of K^+ is

(A) Less than F^- (B) More than F^- (C) Equal of F^- (D) None of these

17. From the given set of species, point out the species from each set having least atomic radius

$(A)\ F^-, Na^+, Mg^{+2}$ $(B)\ Ni, Cu, Zn$

$(C)\ N^{-3}, Cs^+, H^-$ $(D)\ Li, He, Be^{+2}$

(A) $Mg^{+2}, Ni, N^{-3}, Be^{+2}$ (B) Na^+, Cu, Cr^+, Li

(C) F^-, Cu, N^{-3}, He

(D) Na^+, Ni, H^-, He

18. For valence shell of Na screening by

(A) $1s$ orbital (B) $2s$ orbital (C) $2p$ orbital (D) All

19. If Z_{eff} of boron is x then Z_{eff} of oxygen will be

(A) $x - 0.65$ (B) $x + 0.65$ (C) $x + 1.30$ (D) $x + 1.95$

20. Z_{eff} of B is 2.6, then value of zeff of oxygen and fluorine will be :-

(A) $8, 9$ (B) $3.45, 3.8$ (C) $4.55, 5.20$ (D) none

21. In which pair first element has more Z_{eff} than second atom ?

(A) Be, B (B) C, N (C) Na, K (D) F, O

22. No. of electron in penultimate shell of $d-$ block elements

(A) $9 - 18$ (B) $19 - 32$ (C) $1 - 10$ (D) $9 - 32$

23. Total number of d electrons present an element with atomic no. 78 is

(A) 8 (B) 58 (C) 28 (D) 29

24. Incorrect match ?

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

(A) only A (B) A, B, D (C) Only C (D) Only C, D

25. Consider the following information about element P and Q

	Period number	Group number
Q	2	15
P	3	2

Then formula of the compound formed by P and Q element is

(A) PQ (B) P_3Q_2 (C) P_2Q_3 (D) PQ_2

26. The electronic configuration of three elements A, B and C are given below. The molecular formula of the compound formed from B and C will be

$A : 1s^2\ 2s^2\ 2p^6$

$B : 1s^2\ 2s^2\ 2p^6\ 3s^2\ 3p^3$

$C : 1s^2\ 2s^2\ 2p^6\ 3s^2\ 3p^5$

(A) BC (B) B_2C (C) BC_2 (D) BC_3

27. La (lanthanum) having atomic number 57 is a member of

(A) $s-$ block elements (B) $p-$ block elements

(C) $d-$ block elements (D) $f-$ block elements

28. Which electronic configuration must represent an atom in an excited state?

(A) $1s^2, 2s^2 2p^1$ (B) $1s^2, 2s^2 2p^2$ (C) $1s^2, 2s^2 2p^2, 3s^1$ (D) $1s^2, 2s^2 2p^5$

29. Which of the following pair of elements belong to the same period?

(A) Mg and Sb (B) Ca and Zn (C) Na and Ca (D) Ca and Cl

30. The period number and group number of ''Tantalum" $(Z = 73)$ are respectively

(A) $5, 7$ (B) $6, 13$ (C) $6, 5$ (D) None of these

31. The element having electronic configuration $[Kr] 4d^{10} 4f^{14}, 5s^2 5p^6, 6s^2$ belongs to

(A) $s - block$ (B) $p - block$ (C) $d - block$ (D) $f - block$

32. Which of the following electronic configuration represent representative elements

(A) $ns^{1,2}\ np^{1-5}$

(B) $ns^{1,2}\ np^{0-5}$

(C) $ns^{1,2}\ np^{0-6}$

(D) $ns^{1,2}\ np^{1-6}$

33. Species isoelectronic with BF_3 would be

(A) NO_3^- (B) CO_3^{-2} (C) BO_3^{-3} (D) All the above

34. If the atomic number of an element is 58, it will be placed in the periodic table in the

(A) $III\,B$ group and 6^{th} period

(B) $IV\,B$ group and 6^{th} period

(C) $V\,B$ group and 7^{th} period

(D) none of these

35. If three electrons could be accomodated in an orbital, then the element with atomic no 50 will belong to:-

(A) 4^{th} period and p block

(B) 5^{th} period and s block

(C) 4^{th} period and d block

(D) 5^{th} period and p block

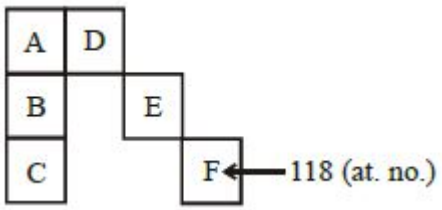
36. An element X belongs to group 16 and 5^{th} period. Its atomic number is

(A) 34 (B) 50 (C) 52 (D) 85

37. The elements having the electronic configuration $[Kr]4d^{10}\,f^{14}\,5s^2\,p^6\,d^2\,6s^2$ belongs to

(A) $s-$ block (B) $p-$ block (C) $d-$ block (D) $f-$ block

38. Find correct one



(A) A belong to 15 group

(B) F, B belong to 14 group

(C) B, F belong to same period

(D) All are incorrect

39. If M^{+3} has configuration $[Ar]3d^{10}$ then M belongs to :-

(A) $s-block$ (B) $p-block$ (C) $d-block$ (D) $f-block$

40. Select the elements belonging to same group from the following list :-

(A) $Z = 12,38,4,88$ (B) $Z = 9,16,3,35$ (C) $Z = 5,11,27,19$ (D) $Z = 24,47,42,55$

41. Select the $CORRECT$ set of group number and period of element $"Uub"$.

(A) $10,7$ (B) $12,6$ (C) $12,7$ (D) $11,7$

42. In which block 106^{th} element belongs

(A) s-block (B) p-block (C) d-block (D) f-block

43. The chemistry of lithium is very similar to that of magnesium even though they are placed in different groups

(A) Both are found together in nature

(B) Both have nearly the same size

(C) Both have similar electronic configuration

(D) The ratio of their charge to size is nearly the same

44. Group comprising of all metals is

(A) IIA (B) IVA (C) $VIIA$ (D) $IIIA$

45. The elements indicating following atomic numbers belong to same group

(A) 11 and 37 (B) 19 and 15 (C) 39 and 88 (D) None of these

46. An element M has an atomic mass 19 and atomic number 9. Its ion is represented by

(A) M^{+} (B) M^{-} (C) M^{2+} (D) M^{2-}

47. Beryllium resembles much with

(A) Zn (B) Al (C) Li (D) Ra

48. Which pair of elements has same chemical properties

(A) $13,22$ (B) $3,11$ (C) $4,24$ (D) $2,4$

49. An element has electronic configuration $1s^2 2s^2 2p^6 3s^2 3p^4$. Predict their period, group and block

(A) Period = 3^{rd}, block = p, group = 16

(B) Period =5^{th}, block = s, group = 1

(C) Period = 3^{rd}, block =p, group = 10

(D) Period = 4^{th}, block = d, group = 12

50. Which of the following dinegative anion is quite common

(A) S^{2-} (B) Se^{2-} (C) Te^{2-} (D) O^{2-}

51. An element has the electronic configuration $1s^2, 2s^2 2p^6, 3s^2 3p^6 3d^5, 4s^1$. It is a

(A) s-block element (B) p-block element (C) d-block element (D) Inert gas

52. The heaviest atom amongst the following is

(A) U (B) Ra (C) Pb (D) Hg

53. The d-block elements consists mostly of

(A) Monovalent metals

(B) All non-metals

(C) Elements which generally form stoichiometric metal oxide

(D) Many metals with catalytic properties

54. In the periodic table, the element with atomic number 16 will be placed in the group

(A) Third (B) Fourth (C) Fifth (D) Sixth

55. Which is dobereiner's triad

(A) Ne, Ar, Fe (B) Li, Na, Rb (C) F, Cl, Br (D) None

56. In Lother Meyer curve, descending position (next to peak) is held by

(A) Halogens (B) Alkaline earth metals

(C) $d-$ block elements (D) Alkali metals

57. Dobereiner traids is

(A) Na, K, Rb (B) Mg,S,As (C) Cl, Br,I (D) P,S,, As

58. Which of the following represents the correct order of metallic character of the given elements ?

(A) $Si < Be < Mg < K$ (B) $Be < Si < Mg < K$

(C) $K < Mg < Be < Si$ (D) $Be < Si < K < Mg$

59. For elements B,C,N,Li,Be,O and F the correct order of first ionization enthalpy is

(A) $Li < Be < B < C < N < O < F$

(B) $B > Li > Be > C > N > O > F$

(C) $Li < B < Be < C < O < N < F$

(D) $Li < Be < B < C < O < N < F$

60. Among the following basic oxide is .....

(A) SO_3 (B) SiO_2 (C) CaO (D) Al_2O_3

61. Match List$-I$ with List$-II$.

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

(A) $(A)-(IV),(B)-(III),(C)-(I),(D)-(II)$

(B) $(A)-(IV),(B)-(II),(C)-(I),(D)-(III)$

(C) $(A)-(II),(B)-(IV),(C)-(III),(D)-(I)$

(D) $(A)-(I),(B)-(II),(C)-(III),(D)-(IV)$

62. The $IUPAC$ nomenclature of an element with electronic configuration $[Rn]5f^{14}6d^{1}7s^{2}$ is.

(A) $Unnilbium$ (B) $Unnilunium$ (C) $Unnilquadium$ (D) $Unniltrium$

63. The metal that has very low melting point and its periodic position is closer to a metalloid is.

(A) Al (B) Ga (C) Se (D) In

64. Given below are the oxides:
Na_2O, As_2O_3, N_2O, NO and Cl_2O_7

Number of amphoteric oxides is ..... .

(A) 0 (B) 1 (C) 2 (D) 3

65. The correct order of electron gain enthalpies of Cl, F,Te and Po is .....

(A) $F < Cl < Te < Po$ (B) $Cl < F < Te < Po$

(C) $Te < Po < Cl < F$ (D) $Po < Te < F < Cl$

66. The correct order of increasing ionic radii is .... .

(A) $Mg^{2+} < Na^{+} < F^{-} < O^{2-} < N^{3-}$

(B) $N^{3-} < O^{2-} < F^{-} < Na^{+} < Mg^{2+}$

(C) $F^{-} < Na^{+} < O^{2-} < Mg^{2+} < N^{3-}$

(D) $Na^{+} < F^{-} < Mg^{2+} < O^{2-} < N^{3-}$

67. Which one of the following statements for $D.I.$ Mendeleeff, is incorrect?

(A) At the time, he proposed Periodic Table of elements structure of atom was known.

(B) Element with atomic number 101 is named after him.

(C) He invented accurate barometer.

(D) He authored the textbook $-$ Principles of Chemistry.

68. Match List$-I$ with List$-II$:

List$-I$ (Metal Ion)	List$-II$ (Group in Qualitative analysis)
(a) Mn^{2+}	(i) Group $-III$
(b) As^{3+}	(ii) Group $-IIA$
(c) Cu^{2+}	(iii) Group $-IV$
(d) Al^{3+}	(iv) Group $-IIB$

Choose the most appropriate answer from the options given below :

(A) $(a)-(i),(b)-(ii),(c)-(iii),(d)-(iv)$

(B) $(a)-(iii),(b)-(iv),(c)-(ii),(d)-(i)$

(C) $(a)-(i),(b)-(iv),(c)-(ii),(d)-(iii)$

(D) $(a)-(iv),(b)-(ii),(c)-(iii),(d)-(i)$

69. Which of the following halogens doesn't exhibit positive oxidation state in its compounds

(A) Cl (B) Br (C) I (D) F

70. Which is the weakest base

(A) $NaOH$ (B) KOH (C) $Ca(OH)_2$ (D) $Zn(OH)_2$

71. Increasing order of acid strength of halogen acid is

(A) $HF < HCl < HBr < HI$ (B) $HCl < HBr < HI < HF$

(C) $HF < HI < HBr < HCl$ (D) None of these

72. Which of the following oxides is most basic

(A) Na_2O (B) Al_2O_3 (C) SiO_2 (D) SO_2

73. The most basic among these hydroxides, is

(A) $Be(OH)_2$ (B) $Mg(OH)_2$ (C) $Ca(OH)_2$ (D) $Ba(OH)_2$

74. Strongest reducing agent is

(A) Cl_2 (B) Cl^- (C) Br^- (D) I^-

75. Most reducing agent is

(A) K (B) Mg (C) Al (D) Ba

76. Last element of group-IV is found to be

(A) Strong metallic (B) Weak metallic

(C) Strong non-metallic (D) Weak non-metallic

77. Which is metalloid

(A) Pb (B) Sb (C) Bi (D) Zn

78. Which of the following show diagonal relationship

(A) B and Si (B) B and Al (C) B and Ga (D) B and C

79. Chemical property of Li and Mg similar because

(A) These belong to same group

(B) Both ionisation potential is same

(C) Shows diagonal relationship

(D) Both electron affinity is same

80. The incorrect order is

(A) Covalent character : $PbCl_2 > CaCl_2 > SrCl_2 > BaCl_2$

(B) Thermal stability : $PbF_4 > PbCl_4 > PbBr_4 > Pbl_4$

(C) Melting point : $KF > KCl > KBr > KI$

(D) Boiling point : $CHCl_3 > CH_3Cl > CCl_4$

81. A compound contains three elements A, B and C if the oxidation number of $A = +2, B = +5$ and $C = -2$, the possible formula of the compound is

(A) $A_3(B_4C)_2$ (B) $A_3(BC_4)_2$ (C) $A_2(BC_3)_2$ (D) ABC_2

82. The atomic numbers of the metallic and non-metallic elements which are liquid at room temperature respectively are

(A) $55, 87$ (B) $33, 87$ (C) $35, 80$ (D) $80, 35$

83. First three ionisation energies (in kJ/mol) of three representative elements are given below

Element	IE_1	IE_2	IE_3
P	495.8	4562	6910
Q	737.7	1451	7733
R	577.5	1817	2745

Then incorrect option is

(A) Q : Alkaline earth metal

(B) P : Alkali metals

(C) $R : s-block$ element

(D) They belong to same period

84. Which of the following electronic configurations represents a sudden large gap between the values of second and third ionisation energies of an element?

(A) $1s^2$, $2s^2\ 2p^3$

(B) $1s^2$, $2s^2\ 2p^6$, $3s^2\ 3p^3$

(C) $1s^2$, $2s^2\ 2p^6$, $3s^2\ 3p^1$

(D) $1s^2$, $2s^2\ 2p^6$, $3s^2$

85. For which element $[IP_2 - IP_1 < 11\,eV]$ is found

(A) Al (B) Mg (C) Ar (D) None of these

86. The successive ionisation energy values for an element X are given below element X belongs to group :-

$A.1^{st}$ ionisation energy $= 410\,kJ\,mol^{-1}$

$B.2^{nd}$ ionisation energy $= 820\,kJ\,mol^{-1}$

$C.3^{rd}$ ionisation energy $= 1100\,kJ\,mol^{-1}$

$D.4^{th}$ ionisation energy $= 1500\,kJ\,mol^{-1}$

$E.5^{th}$ ionisation energy $= 3200\,kJ\,mol^{-1}$

(A) 14 (B) 13 (C) 15 (D) 12

87. The correct order of ionisation energy of C, N, O, F is :-

(A) $F < N < C < O$

(B) $C < N < O < F$

(C) $C < O < N < F$

(D) $F < O < N < C$

88. Which of the following is arranged in decreasing order of size?

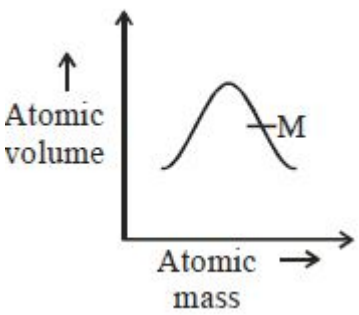
(A) $Mg^{2+} > Al^{3+} > O^{2-}$

(B) $O^{2-} > Mg^{2+} > Al^{3+}$

(C) $Al^{3+} > Mg^{2+} > O^{2-}$

(D) $Al^{3+} > O^{2-} > Mg^{2+}$

89. What will be the formula of $'M'$ nitrate?



(A) M_2NO_3 (B) MNO_3 (C) $M(NO_3)_2$ (D) $M(NO_2)_2$

90. Incorrect order of size

(A) $Zn > Cu > Ni$ (B) $O^{-2} > F^- > Na^+$

(C) $O^{-2} > Cl^- > S^{-2}$ (D) $I^- > Br^- > Cl^-$

91. Incorrect order of ionic radius is

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

(B) $V^{+2} > V^{+3} > V^{+4} > V^{+5}$

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

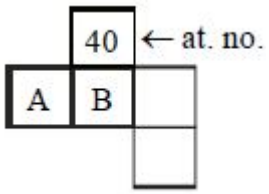
(D) $O^{-2} > Rb^+ > Sr^{+2} > Cs^+$

92. Correct order of ionic radius

(A) $Te^{2-} > Br^- > K^+ > Cl^-$ (B) $Te^{2-} > Br^- > Cl^- > K^+$

(C) $Br^- > Te^{2-} > Cl^- > K^+$ (D) $K^+ > Te^{2-} > Br^- > Cl^-$

93. Calculate atomic number of A and B respectively



(A) $71, 72$ (B) $58, 72$ (C) $57, 72$ (D) $57, 71$

94. Arrange Ce^{3+}, La^{3+}, Pm^{3+}, and Yb^{+3} in increasing order of size

(A) $Yb^{+3} < Pm^{3+} < Ce^{3+} < La^{3+}$

(B) $Ce^{+3} < Yb^{3+} < Pm^{3+} < La^{3+}$

(C) $Yb^{+3} < Pm^{3+} < La^{3+} < Ce^{3+}$

(D) $Pm^{+3} < La^{3+} < Ce^{3+} < Yb^{3+}$

95. K^+, Cl^-, Ca^{2+} and S^{2-}, ions are isoelectronic. The decreasing order of their size is

(A) $S^{2-} > Cl^- > K^+ > Ca^{2+}$

(B) $Ca^{2+} > K^+ > Cl^- > S^{2-}$

(C) $K^+ > Cl^- > Ca^{2+} > S^{2-}$

(D) $Cl^- > S^{2-} > Ca^{2+} > K^+$

96. The incorrect statement is / are

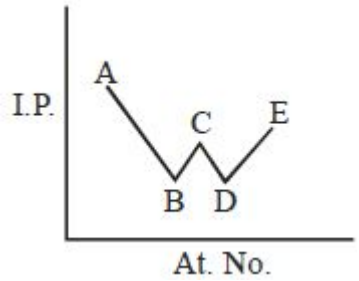
(A) Mendeleev's periodic law was based on atomic number of the element

(B) Effective nuclear charge (z_{eff}) = atomic mass -shielding constant

(C) Mulliken's value of electronegativity of an element is about 2.8 times lesser than the Pauling scale

(D) All of these

97. If A to E are element of a group from top to bottom then group can be



(A) 13 group (B) 1 group (C) 2 group (D) Inert gas

98. Match the colum

Column $-I$	Column $-II$
(Atomic number)	(Position of element in Periodic table)
$(A) \quad Z = 37$	$(P) \quad p-$ block
$(B) \quad Z = 42$	$(Q) \quad f-$ block
$(C) \quad Z = 34$	$(R) \quad d-$ block
$(D) \quad Z = 92$	$(S) \quad s-$ block

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

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

99. Which of the following is the incorrect match for atom of element ?

(A) $[Ar]\,3d^5\,4s^1 \rightarrow 4^{th}$ period, 6^{th} group

(B) $[Kr]\,4d^{10} \rightarrow 5^{th}$ period, 12^{th} group

(C) $[Rn]\,6d^2\,7s^2 \rightarrow 7^{th}$ period, 3^{th} group

(D) $[Xe]\,f^{14}\,5d^2\,6s^2 \rightarrow 6^{th}$ period, 4^{th} group

100. Which of the following sequence represents atomic number of only representative elements?

(A) $55, 12, 48, 53$ (B) $13, 33, 54, 83$ (C) $3, 33, 53, 87$ (D) $22, 33, 55, 66$

101. Consider the following information about element P and Q

	Period number	Group number
P	2	15
Q	3	2

Then formula of the compound formed by P and Q element is

(A) PQ (B) P_3Q_2 (C) P_2Q_3 (D) PQ_2

102. An element whose $IUPAC$ name is ununtrium (Uut) belongs to

(A) $s-block$ element (B) $p-block$ element

(C) $d-block$ element (D) Transition element

103. The elements with atomic number 117 and 120 are yet to be discovered. In which group would you place these elements when discovered ?

(A) $17,2$ (B) $16,4$ (C) $15,3$ (D) $18,2$

104. Match the Column I with Column II and select correct answer by given codes.

Column I (Element types)	Column II (Electronic configuration)
A. Inert-gas elements	$1.(n-1)d^{1-10}ns^{1-2}$
B. Transition elements	$2.ns^2np^6$
C. Inner-transition elements	$3.(n-2)f^{1-14}$ $(n-1)s^2p^6d^{0-1}ns^2$

(A) $A-1; B-2, C-3$ (B) $A-2; B-1, C-3$

(C) $A-3; B-2, C-1$ (D) $A-2; B-3, C-1$

105. Which is correct

(A) $Z=72:p$ block (B) $Z=91:d$ block (C) $Z=85:f$ block (D) None

106. Which one of the following arrangements represents the correct order of electron gain enthalpy (with negative sign) of the given atomic species.

(A) $Cl<F<S<O$ (B) $O<S<F<Cl$

(C) $S<O<Cl<F$ (D) $F<Cl<O<S$

107. Which of the following elements shows maximum number of different oxidation states in its compounds

(A) Eu (B) La (C) Gd (D) Am

108. The first ionization potentials (eV) of Be and B respectively are

(A) $8.29\,eV$, $9.32\,eV$ (B) $9.32\,eV$, $9.32\,eV$

(C) $8.29\,eV$, $8.29\,eV$ (D) $9.32\,eV$, $8.29\,eV$

109. Which of the following does not represent the correct order of the property indicated

(A) $Sc^{3+}>Cr^{3+}>Fe^{3+}>Mn^{3+}$ ionic radii

(B) $Sc<Ti<Cr<Mn$ Density

(C) $Mn^{2+}>Ni^{2+}<Co^{2+}<Fe^{2+}$ ionic radii

(D) $FeO<CaO>MnO>CuO$ Basic nature

110. Which of the following is largest

(A) Cl^- (B) S^{2-} (C) Na^+ (D) F^-

111. The ionic radii ($\overset{o}{A}$) of C^{4-} and O^{2-} respectively are 2.60 and 1.40. The ionic radius of the isoelectronic ion N^{3-} would be.....$\overset{o}{A}$

(A) 131 (B) 2.83 (C) 1.71 (D) 2.63

112. The law of triads is applicable to a group of

(A) Cl, Br, I (B) C, N, O (C) Na, K, Rb (D) H, O, N

113. In which of the following arrangements, the order is NOT according to the property indicated against it?

(A) $Li < Na < K < Rb$: Increasing metallic radius

(B) $I < Br < F < Cl$: Increasing electron gain enthalpy (with negative sign)

(C) $B < C < N < O$ Increasing first ionization enthalpy

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

114. The element with atomic number 117 has not been discovered yet. In which family would you place this element if discovered?

(A) Alkali metals (B) Alkaline earth metals

(C) Halogens (D) Noble gases

115. Which of the order for ionization energy is correct?

(A) $Be < B < C < N < O$ (B) $B < Be < C < O < N$

(C) $Be > B > C > N > O$ (D) $B < Be < N < C < O$

116. Consider the following statements

I. The radius of an anion is larger than that of the parent atom.

II. The ionization energy generally increases with increasing atomic number in a period.

III. The electronegativity of an element is the tendency of an isolated atom to attract an electron.

Which of the above statements is/are correct?

(A) I alone (B) II alone (C) I and II (D) II and III

117. The pair of amphoteric hydroxides is

(A) $Al(OH)_3$, $LiOH$ (B) $Be(OH)_2$, $Mg(OH)_2$

(C) $B(OH)_3$, $Be(OH)_2$ (D) $Be(OH)_2$, $Zn(OH)_2$

118. Assertion : First ionization energy for nitrogen is lower than oxygen.

Reason : Across a period effective nuclear charge decreases.

(A) If both Assertion and Reason are correct and the Reason is a correct explanation of the Assertion.

(B) If both Assertion and Reason are correct but Reason is not a correct explanation of the Assertion.

(C) If the Assertion is correct but Reason is incorrect.

(D) If both the Assertion and Reason are incorrect.

119. Spectrum of Li^{2+} is similar to that of

(A) H (B) He (C) Be (D) Ne

120. Which of the following ion is the smallest ion

(A) O_2^+ (B) O_2^- (C) O_2 (D) O_2^{-2}

121. The radii of F, F^-, O and O^{-2} are in the order of

(A) $O^{2-} > F^- > O > F$ (B) $O^{2-} > F^- > F > O$

(C) $F^- > O^{2-} > F > O$ (D) $O^{2-} > O > F^- > F$

122. Which of the following is the most electropositive element

(A) Aluminium (B) Magnesium (C) Phosphorus (D) Sulphur

123. Which of the following elements are analogous to the lanthanides

(A) Actinides (B) Borides (C) Carbides (D) Hydrides

124. Chloride of an element A gives neutral solution in water. In the periodic table, the element A belongs to

(A) First group (B) Third group

(C) Fifth group (D) First transition series

125. Elements after atomic number 103 have been discovered till now. If an element with atomic number 106 were ever discovered which of the following electronic configuration will it possess

(A) $[Rn]\,5f^{14}\,6d^4\,7s^2$ (B) $[Rn]\,5f^{14}\,6d^5 7s^1$

(C) $[Rn]\,5f^{14}\,6d^6\,7s^0$ (D) $[Rn]\,5f^{14}\,6d^1\,7s^2\,7p^3$

126. Thalium shows different oxidation states because

(A) It is a transition element

(B) Of inert pair effect

(C) Of its amphoteric character

(D) Of its higher reactivity

127. Which of the following presents the correct order of second ionization enthalpies of C, N, O and F ?

(A) $F > O > N > C$ (B) $O > N > F > C$ (C) $C > N > O > F$ (D) $O > F > N > C$

128. Which among the following elements has the highest first ionization enthalpy?

(A) Nitrogen (B) Boron (C) Carbon (D) Oxygen

129. The increasing order of the ionic radii of the given isoelectronic species is :

(A) $Cl^-, Ca^{2+}, K^+, S^{2-}$

(B) $S^{2-}, Cl^{-}, Ca^{2+}, K^{+}$

(C) $Ca^{2+}, K^{+}, Cl^{-}, S^{-2}$

(D) $K^{+}, S^{-2}, Ca^{2+}, Cl^{-}$

130. Which one of the following orders presents the correct sequence of the increasing basic nature of the given oxides ?

(A) $Al_2O_3 < MgO < Na_2O < K_2O$ (B) $MgO < K_2O < Al_2O_3 < Na_2O$

(C) $Na_2O < K_2O < MgO < Al_2O_3$ (D) $K_2O < Na_2O < Al_2O_3 < MgO$

131. The correct sequence which shows decreasing order of the ionic radii of the elements is

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

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

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

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

132. Following statements regarding the periodic trends of chemical reactivity of the alkali metals and the halogens are given. Which of these statements gives the correct picture?

(A) Chemical reactivity increases with increase in atomic number down the group in both the alkali metals and halogens

(B) In alkali metals the reactivity increases but in the halogens it decreases with increase in atomic number down the group

(C) The reactivity decreases in the alkali metals but increases in the halogens with increase in atomic number down the group

(D) In both the alkali metals and the halogens the chemical reactivity decreases with increase in atomic number down the group

133. Among Al_2O_3, SiO_2, P_2O_3 and SO_2 the correct order of acid strength is

(A) $Al_2O_3 < SiO_2 < SO_2 < P_2O_3$

(B) $SiO_2 < SO_2 < Al_2O_3 < P_2O_3$

(C) $SO_2 < P_2O_3 < SiO_2 < Al_2O_3$

(D) $Al_2O_3 < SiO_2 < P_2O_3 < SO_2$

134. Select the amphoteric substance in the following

(A) SO_3 (B) $NaOH$ (C) CO_2 (D) $Al(OH)_3$

135. Which of the following order is correct for the property mentioned in brackets ?

(A) $S^{2-} > Cl^{-} > K^{+} > Ca^{2+}$ (Ionisation energy)

(B) $C < N < F < O$ (2^{nd} Ionisation energy)

(C) $B > Al > Ga > In > Tl$ (Electronegativity)

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

136. Aqueous solutions of two compounds $M_1 - O - H$ and $M_2 - O - H$ are prepared in two different beakers. If, the electronegativity of $M_1 = 3.4, M_2 = 1.2, O = 3.5$ and $H = 2.1$, then the nature of two solutions will be respectively

(A) acidic, basic (B) acidic, acidic (C) basic, acidic (D) basic, basic

137. Correct expression of "Allred and Rochow's" scale is

(A) Electronegativity $= 0.744\,\frac{Z_{eff.}}{r^2} + 0.359$

(B) Electronegativity $= 0.359\,\frac{r^2}{Z_{eff.}} + 0.744$

(C) Electronegativity $= 0.359\,\frac{Z_{eff.}}{r} + 0.744$

(D) Electronegativity $= 0.359\,\frac{Z_{eff.}}{r^2} + 0.744$

138. Match the column?

Column $-I$	Column $-II$
(A) Ionisation potential	$(P)\ O < F < N$
(B) Electronegativity	$(Q)\ N < O < F$
$(C)\ Z_{eff}$	$(R)\ O < N < F$
(D) Electron affinity	$(S)\ N < C < O$

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

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

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

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

139. The formation of the oxide ion $O^{2-}(g)$ requires first an exothermic and then an endothermic step as shown below

$O(g) + e^- \rightarrow O^-(g); \Delta H = -142\,kJ\,mol^{-1}$

$O^-(g) + e \rightarrow O^{2-}(g); \Delta H = 844\,kJ\,mol^{-1}$

This is because

(A) O^- ion has comparatively larger size than oxygen atom

(B) Oxygen has high electron affinity

(C) O^- ion will tend to resist the addition of another electron

(D) Oxygen is more electronegative

140. Consider the following changes

$M(s) \rightarrow M(g)$ .....(1)

$M(s) \rightarrow M^{2+}(g) + 2e^-$ .....(2)

$M(g) \rightarrow M^+(g) + e^-$ .....(3)

$M^+(g) \rightarrow M^{2+}(g) + e^-$ .....(4)

$M(g) \rightarrow M^{2+}(g) + 2e^-$ .....(5)

The second ionization energy of M could be calculated from the energy values assoclated with

(A) $1+3+4$ (B) $2-1+3$ (C) $1+5$ (D) $5-3$

141. $X_g \rightarrow X^+_{(g)} + e^-, \quad \Delta H = +720\, kJ\, mol^{-1}$

Calculate the amount of energy required to convert $110\, mg$ of $'X'$ atom in gaseous state into X^+ ion ..... kJ (Atomic wt. for $X = 7\, g/mol$)

(A) 10.4 (B) 12.3 (C) 11.3 (D) 14.5

142. Second ionization potential of Li, Be and B is in the order

(A) $Li > Be > B$ (B) $Li > B > Be$ (C) $Be > Li > B$ (D) $B > Be > Li$

143. X , Y & Z are elements of same period & also belongs to $p-$ block elements. Y has positive value of $\Delta\, Heg$ & $'Z'$ has highest value of $2^{nd} I.E$ among them. Then correct order of their atomic number is

$(a)\ X < Y < Z \quad (b) X < Z < Y$

$(c) Y < Z < X \quad (d) Z < Y < X$

(A) only a (B) a & c (C) b , c & d (D) all are correct

144. The set representing the correct order of ionic radius is

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

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

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

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

145. Incorrect order of radius is

(A) $Sr^{2+} < Rb^+ < Br^- < Se^{2-}$

(B) $Nb^{5+} < Zr^{4+} < Y^{3+}$

(C) $Co > Co^{2+} > Co^{3+} > Co^{4+}$

(D) $Ba^{2+} < Cs^+ < Se^{2-} < As^{3-}$

146. Incorrect order of ionic size is

(A) $La^{3+} > Gd^{3+} > Eu^{3+} > Lu^{3+}$ (B) $V^{2+} > V^{3+} > V^{4+} > V^{5+}$

(C) $Tl^+ > In^+ > Sn^{2+} > Sb^{3+}$ (D) $K^+ > Sc^{3+} > V^{5+} > Mn^{7+}$

147. Na^+, Mg^{2+}, Al^{3+}, Si^{4+} are isoelectronics. Their ionic size follows the order

(A) $Na^+ < Mg^{2+} < Al^{3+} < Si^{4+}$ (B) $Na^+ > Mg^{2+} > Al^{3+} > Si^{4+}$

(C) $Na^+ < Mg^{2+} > Al^{3+} > Si^{4+}$ (D) $Na^+ > Mg^{2+} < Al^{3+} > Si^{4+}$

148. The ground state electronic configurations of the elements, $U, V, W, X,$ and Y (these symbols do not have any chemical significance) are as follows

U $1s^2\ 2s^2\ 2p^3$

V $1s^2\ 2s^2\ 2p^6\ 3s^1$

W $1s^2\ 2s^2\ 2p^6\ 3s^2\ 3p^2$

X $1s^2\ 2s^2\ 2p^6\ 3s^2\ 3p^6\ 3d^5\ 4s^2$

Y $1s^2\ 2s^2\ 2p^6\ 3s^2\ 3p^6\ 3d^{10}\ 4s^2\ 4p^6$

Determine which sequence of elements satisfy the following statements :

(i) Element forms a carbonate which is not decomposed by heating

(ii) Element is most likely to form coloured ionic compounds

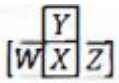
(iii) Element has largest atomic radius

(iv) Element forms only acidic oxide

(A) $V\,W\,Y\,U$ (B) $V\,X\,Y\,W$ (C) $V\,W\,Y\,X$ (D) $V\,X\,W\,U$

149. Consider the following four elements, which are represented according to long form of periodic table.

Here W, Y and Z are left, up and right elements with respect to the element $'X'$ and $'X'$ belongs to 16^{th} group and 3^{rd} period. Then according to given information the incorrect statement regarding given elements is



(A) Maximum electronegativity : Y

(B) Maximum catenation property : X

(C) Maximum electron affinity : Z

(D) Y exhibits variable covalency

150. If $IUPAC$ name of an element is "$unununium$" then correct statement regarding element is

(A) It is a inner transition element

(B) It belongs to 8^{th} period in periodic table

(C) It is transition element

(D) It is a non-transition element

----- घायल तो यहां हर परिंदा है। मगर जो फिर से उड़ सका वहीं जिंदा है.. -----