Chapter 3 - Classification of Elements and Periodicity

Evolution of Periodic Table - Level I

1 The basic difference between Mendeleev's Periodic Law (A) and Modern Periodic Law (B) is:

1.	A is based on atomic weights while B is based on atomic numbers.
2.	B is based on atomic weights while A is based on atomic numbers.
3.	A is based on the number of isotopes while B is based on atomic numbers.
4.	A is based on physical properties while B is based on chemical properties.

2 The formula for the oxide formed by Eka-aluminum is:
1. EO_4
2. E_2O_3
3. E_3O_2
4. EO

3 The basic theme of the periodic table is:

1.	To classify the elements in a period according to their properties.
2.	To classify the elements in a group according to their ionization enthalpy.
3.	To classify the elements in periods and groups according to their properties.
4.	To classify the elements in periods and groups according to their lustre.

Evolution of Periodic Table - Level II

4 Those in a group that falls under the law of triads include:
1. Cl, Br, I
2. C, N, O
3. Na, K, Rb
4. H, O, N

Modern Periodic Table & Periodicity - Level I

5 Eka aluminium and Eka silicon are now known as:

1.	Ga and Ge	2.	Al and Si
3.	Fe and S	4.	H^+ and Si

6 An example of metalloid elements in the periodic table is:

1.	Na and K	2.	Cu and Al
3.	As and Si	4.	Ca and Mg

7 In the long form of the periodic table, all the non-metals are placed under:
1. *s*-Block
2. *p*-Block
3. *f*-Block
4. *d*-Block

8 The element named after Lawrence Berkeley Laboratory is:

1.	Seaborgium	2.	Lawrencium
3.	Moscovium	4.	Hafnium

9 Among the following elements whose atomic numbers are given below, which cannot be accommodated in the present set up of the long periodic table?
1. 107
2. 118
3. 126
4. 102

10 Among the following elements, the one that is not an actinoid is:
1. Curium (Z=96)
2. Californium (Z=98)
3. Uranium (Z=92)
4. Terbium (Z=65)

11 The elements with atomic numbers 35, 53, and 85 are
1. Noble gases
2. Halogens
3. Heavy metals
4. Light metals

12 Correct statement regarding transuranic elements is :
1. They have higher atomic number than uranium.
2. They are lighter than uranium.
3. They have lower atomic number than uranium.
4. They have same atomic number as uranium.

13 A variable oxidation state is shown by which of the following?

1.	Na	2.	Cu
3.	Mg	4.	Al

14 The period number in the long form of the periodic table is equal to :

1.	Magnetic quantum number of any element of the period.
2.	Atomic number of any element of the period.
3.	Maximum principal quantum number of any element of the period.
4.	Maximum azimuthal quantum number of any element of the period.

15 The outermost electronic configuration of the last element of the p-block in the 6th period is represented by:
1. $7s^2 7p^6$
2. $5f^{14} 6d^{10} 7s^2 7p^0$
3. $4f^{14} 5d^{10} 6s^2 6p^6$
4. $4f^{14} 5d^{10} 6s^2 6p^4$

16 The following property/ies decrease from left to right across the periodic table and increase 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)

17 The elements in which electrons are progressively filled in 4f-orbitals are called:

1.	Actinoids	2.	Transition elements
3.	Lanthanoids	4.	Halogens

18 The most non-metallic element among the given elements is

1.	Be	2.	B
3.	Mg	4.	Al

19 Which among the following options is a nonmetal?
1. Gold
2. Mercury
3. Scandium
4. Selenium

20 An element whose IUPAC name is Ununtrium (Uut) belongs to:
1. s-Block elements
2. p-Block elements
3. d-Block elements
4. Inner transition elements .

21 Which among the following is not a representative element?
1. Tellurium
2. Tantalum
3. Thallium
4. Astatine

MODERN PERIODIC TABLE & PERIODICITY - LEVEL II

22 The period number and group number of "Tantalum" (Z=73) are respectively :
1. 5, 7
2. 6, 13
3. 6, 5
4. None of the above.

23 Elements of group IB is called as:
1. Normal elements.
2. Transition elements.
3. Alkaline earth metals.
4. Alkali metals.

24 If the IUPAC name of an element is "*Unununium* ", then the correct statement regarding the element is:
1. It is an inner transition element.
2. It belongs to the 8th period in the periodic table.
3. It is a transition element.
4. It is a non-transition element.

25 Identify the incorrect match.

Name	IUPAC Official Name
a. Unnilunium	(i) Mendelevium
b. Unniltrium	(ii) Lawrecium
c. Unnilhexium	(iii) Seaborgium
d. Ununnnium	(iv) Darmstadtium

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

26 The total number of 3rd period elements with more than one electron in a 3d orbital is
1. 9
2. 11
3. 0
4. 8

27 The group number that has non-metal, liquid as well as gas at room temperature, is -
1. 15
2. 14
3. 18
4. 17

28 Which among the following elements is the bridge element?
1. K
2. O
3. Mg
4. Pb

29 The lightest metal in the periodic table is:
1. H
2. Mg
3. Ca
4. Li

ELECTRONIC CONFIGURATION - LEVEL I

30 Match the element in column I with that in column II.

Column-I	Column-II
(a) Copper	(i) Non-metal
(b) Fluorine	(ii) Transition metal
(c) Silicon	(iii) Lanthanoid
(d) Cerium	(iv) Metalloid

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

31 The maximum number of elements that can be accommodated in the sixth period are :
1. 8
2. 18
3. 32
4 16

32 The period and group number of the element with Z =114 are
1. 8th period and 16th group
2. 7th period and 14th group
3. 14th period and 7th group
4. 7th group and 14th period

33 Elements with an electronic configuration $1s^2\ 2s^2 2p^6\ \ 3s^2 3p^6 3d^{10}\ 4s^2 4p^6 4d^{10}\ 5s^2 5p^3$ belong to the group :
1. 3^{rd}
2. 15^{th}
3. 17^{th}
4. 2^{nd}

34 The outermost electronic configuration of the most electronegative element is :
1. ns^2, np^3
2. $ns^2, np^6(n-1)d^5$
3. ns^2, np^5
4. ns^2, np^6

35 Sodium generally does not show an oxidation state of +2, because of:
1. High first ionization potential.
2. High second ionization potential.
3. Large ionic radius.
4. High electronegativity.

36 The pair that has both members from the same period of the Periodic Table is
1. Cl, Br
2. Ca, Cl
3. Na, Ca
4. Na, Cl

37 The electronic configuration that represents the d-block element is:
1. $1s^2\ 2s^2\ 2p^6\ 3s^2 3p^6 3d^{10}\ 4s^2 4p^6$
2. $1s^2\ 2s^2\ 2p^6\ 3s^2 3p^6 3d^{10}\ 4s^2 4p^1$
3. $1s^2\ 2s^2\ 2p^6\ 3s^2 3p^6 3d^{10}\ 4s^2$
4. $1s^2\ 2s^2\ 2p^6\ 3s^2 3p^6\ 4s^2$

38 The general outer electronic configuration of s, p, d , and f-block elements respectively would be :

1.	ns^{1-2}, nd^2np^{1-6}, $(n-1)d^{1-10}np^{0-2}$, $(n-2)f^{1-14}(n-1)d^{0-10}ns^2$
2.	ns^{1-2}, ns^2np^{1-6}, $(n-1)f^{1-10}ns^{0-2}$, $(n-2)g^{1-14}(n-1)d^{0-1}ns^2$
3.	ns^{1-2}, ns^2np^{1-6}, $(n-1)d^{1-10}ns^{1-2,}$ $(n-2)f^{1-14}(n-1)d^{0-1}$ ns^2
4.	np^{1-2}, nd^2np^{1-6}, $(n-1)d^{1-10}ns^{0-2}$, $(n-2)f^{1-14}(n-1)d^{0-10}ns^2$

39 The electronic configuration of chalcogens in their outermost shell is :
1. $ns^2\ np^3$
2. $ns^2\ np^4$
3. $ns^2\ np^5$
4. $ns^2\ np^6$

40 The position of elements with an outer electronic configuration as $(n-2)\ f^7(n-1)d^1ns^2,\ n\ =\ 6$
1. 6^{th} period and 10^{th} group.
2. 7^{th} period and 3^{rd} group.
3. 6^{th} period and 3^{rd} group.
4. 7^{th} period and 9^{th} group.

41 Consider the following electronic configuration of an element (P) :
$[Xe]4f^{14}5d^16s^2$
The correct statement about element 'P' is :
1. It belongs to the 6th period and the 1st group.
2. It belongs to the 6th period and the 2nd group.
3. It belongs to the 6th period and the 3rd group.
4. None of the above.

42 Among the following, the most characteristic oxidation states for lead and tin are, respectively:
1. +4, +2
2. +2, +4
3. +4, +4
4. +2, +2

43 $_{58}Ce$ is a member of which block?
1. *s*-block elements.
2. *p*-block elements.
3. *d*-block elements.
4. *f*-block elements.

ELECTRONIC CONFIGURATION - LEVEL II

44 The factor that does not affect the valence electron is
1. Azimuthal quantum number
2. Nuclear charge (Z)
3. Nuclear mass
4. Number of core electrons

45 The electronic configuration of Palladium is:
1. $[Rn]\ 5f^3\ 6d^1\ 7s^2$
2. $[Rn]\ 5f^5\ 6d^1\ 7s^2$
3. $[Rn]\ 5f^2\ 6d^1\ 7s^2$
4. None of the above.

46 The electronic configuration of the most electropositive element is :
1. $[He]2s^1$
2. $[Xe]6s^1$
3. $[He]2s^2$
4. $[Xe]6s^2$

47 The incorrect match among the following options is :

1. $[Ar]3d^5 4s^1 \rightarrow 4^{th}$ period, 6^{th} group
2. $[Kr]4d^{10} \rightarrow 5^{th}$ period, 12^{th} group
3. $[Rn]6d^2 7s^2 \rightarrow 7^{th}$ period, 3^{th} group
4. $[Xe]4f^{14} 5d^2 6s^2 \rightarrow 6^{th}$ period, 4^{th} group

48 The statement that is incorrect for the periodic classification of elements is:

1. The properties of elements are a periodic function of their atomic number.
2. Non-metallic elements are lesser in number than metallic elements.
3. The first ionization energies of elements along a period do not vary in a regular manner with an increase in atomic number.
4. For transition elements, the *d*-subshells are filled with electrons monotonically with an increase in atomic number.

49 The most common oxidation state of cerium (Ce) is:

1. +5, +3
2. +5, +4
3. +3, +4
4. +3, +5

SCREENING EFFECT - LEVEL I

50 The order of screening effect of electrons of s, p, d and f orbitals of a given shell of an atom on electrons in its outer shell is :

1. s > p > d > f
2. f > d > p > s
3. p < d < f < s
4. f > p > s > d

51 The screening effect of 'd' electrons is:

1. Much less than *s*-electrons.
2. Much more than *s*-electrons.
3. Equal to *s*-electrons.
4. Equal to *p*-electrons.

ATOMIC SIZE - LEVEL I

52 The correct order of size of the given species is:

1. $I > I^- > I^+$
2. $I^+ > I^- > I$
3. $I > I^+ > I^-$
4. $I^- > I > I^+$

53 The correct statement about radius is :

1.	Radius increases during cation and anion formation.
2.	Radius increases during anion formation and decreases during cation formation.
3.	Radius decreases in cation as well as anion.
4.	Radius decreases during anion formation and increases during cation formation.

54 The correct order of the decreasing ionic radii among the following isoelectronic species is:

1. $Ca^{2+} > K^+ > S^{2-} > Cl^-$
2. $Cl^- > S^{2-} > Ca^{2+} > K^+$
3. $S^{2-} > Cl^- > K^+ > Ca^{2+}$
4. $K^+ > Ca^{2+} > Cl^- > S^{2-}$

55 Match the following isoelectronic species in column I and column II :

Column I	Column II
i. F^-	a. Br^-
ii. Ar	b. Si^{2+}
iii. Mg	c. O^{2-}
iv. Rb^+	d. S^{2-}

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

56 Among the following species, the smallest ion is :

1. Na^+
2. F^-
3. O^{2-}
4. N^{3-}

57 The correct sequence of increasing radii is -

1. $Ar < K^+ < Ca^{2+}$
2. $Ca^{2+} < Ar < K^+$
3. $Ca^{2+} < K^+ < Ar$
4. $K^+ < Ar < Ca^{2+}$

58 In alkaline earth metals, the properties, from the following, that will increase from Be to Ba are-
(i) Atomic radius (ii) Ionisation energy (iii) Nuclear charge

1. (i) and (ii)
2. (i) and (iii)
3. (ii) and (iii)
4. (i), (ii), and (iii)

59 A common trend in both groups I and II elements in the periodic table, as the atomic number increases, is :

1. Oxidizing power increases
2. Atomic radius increases
3. Maximum valency increases
4. Reactivity with water decreases

60 Increasing order of ionic radii and decreasing order of number of protons of the given isoelectronic species is:-

1. $Ca^{+2}, K^+, Cl^-, S^{-2}$
2. $Cl^-, Ca^{+2}, K^+, S^{-2}$
3. $S^{-2}, Cl^-, Ca^{+2}, K^+$
4. None of the above

61 The correct order of ionic radii is:

1. $H^- > H^+ > H$
2. $Na^+ > F^- > O^{2-}$
3. $F^- > O^{2-} > Na^+$
4. $N^{3-} > Mg^{2+} > Al^{3+}$

62 The ionic radius indicates the distance between the nucleus and :

1. outermost shell of an atom.
2. outermost shell of an ion.
3. outermost shell of the cation only.
4. outermost shell of the anion only.

63 The correctly matched option is:-

1. $Fe^{+3} > Fe^{+2} > Fe^+$: Order of atomic radius
2. $O > C > B > N$: Order of ionisation energy
3. $O^{-2} < O^- < O < O^+$: Increasing order of Z_{eff}
4. $O < N < F < Ne$: Order of electron affinity

64 The trend of atomic radius in a period and a group is :

1.	Generally decreases from right to left across a period and increases down a group.
2.	Generally increases from left to right across a period and decreases down a group.
3.	Generally decreases from left to right across a period and increases down a group.
4.	Generally remains same from left to right across a period and increases down a group.

ATOMIC SIZE - LEVEL II

65 The size of isoelectronic species: F^-, Ne and Na^+, is affected by :

1.	Nuclear charge (Z)
2.	Valence principal quantum number (n)
3.	Electron-electron interaction in the outer orbitals
4.	None of the above factors because their size is the same

66 Isoelectronic pair, among the following, is :

1. ClO_2^-, ClF_2^+
2. IF_2^-, I_3^-
3. Cl_2O, ICl_2^-
4. ICl_2^-, ClO_2

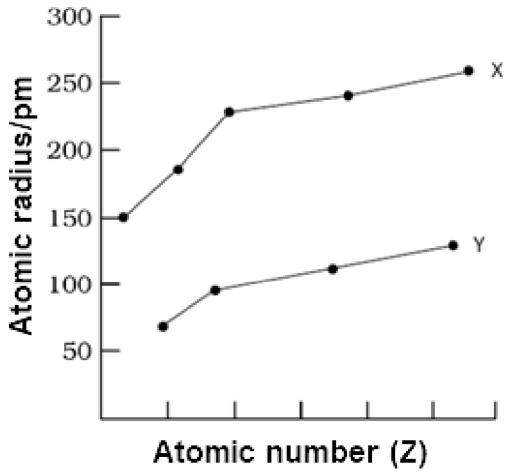
67 Given below are four orders for the size of the species. Choose the correct ones :

(a) $Al^{3+} < Mg^{2+} < Na^+ < F^-$
(b) $Al^{3+} < Mg^{2+} < Li^+ < K^+$
(c) $Fe^{4+} < Fe^{3+} < Fe^{2+} < Fe$
(d) $Mg > Al > Si > P$

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

68 The correct sequence of increasing order of density is:
1. Li < K< Na < Rb < Cs
2. Li < Na < K < Rb < Cs
3. Cs < Rb < K < Na < Li
4. K < Li < Na < Rb < Cs

69 Consider the following curve:



X represents group with highest atomic radius. The element that belongs to Y group can be :
1. Na
2. Mg
3. Br
4. Si

70 The radius of which ion is closest to that of Li^+ ion ?
1. Na^+
2. Be^{2+}
3. Mg^{2+}
4. Al^{3+}

IONIZATION ENERGY (IE) - LEVEL I

71 The first ionization enthalpy values (in kJ mol^{-1}) of group 13 elements are :

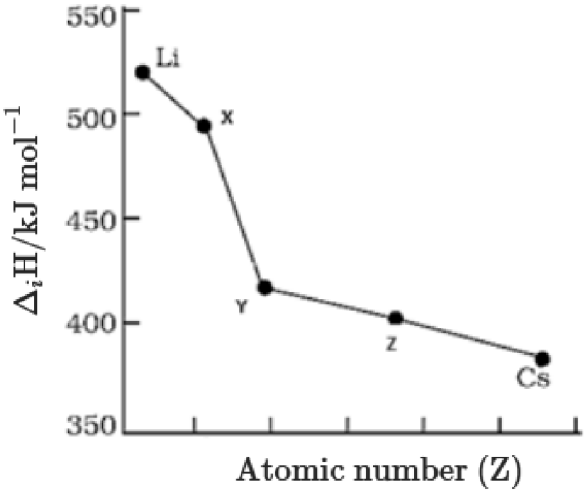
B	Al	Ga	In	Tl
801	577	579	558	589

The explanation for the deviation from the general trend can be -
1. Ga has lower ionization enthalpy than Al.
2. Ga has higher ionization enthalpy than Al.
3. Al has higher ionization enthalpy than Ga.
4. Ga has a lesser valence electron than Al.

72 B has lesser ionization enthalpy than Be, because -

1.	It is easier to remove electrons from p - subshell than a completely filled s - subshell.
2.	The s-electron can be removed easier than the p-electron.
3.	Ionisation enthalpy decreases with an increase in atomic number.
4.	Ionisation enthalpy increases along the period.

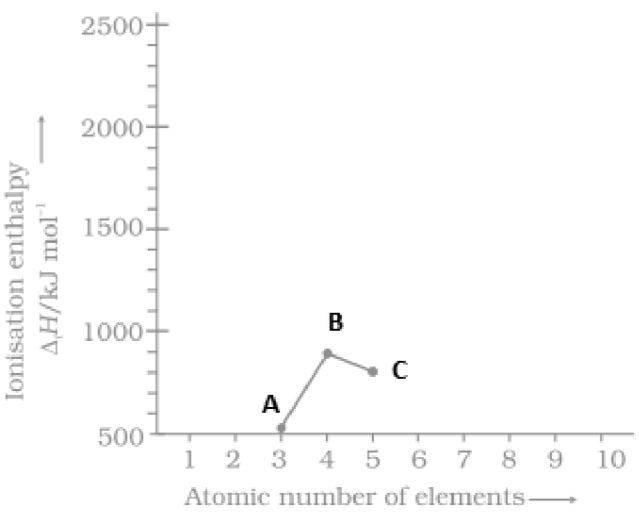
73 The graph between ionization energy and atomic number for the first group elements is shown below:



The element represented by Y in the graph above is -
1. Cs
2. Rb
3. Ca
4. K

74 Among the following electronic configurations, an atom that has the lowest ionisation enthalpy is:
1. $1s^2 2s^2 2p^5$
2. $1s^2 2s^2 2p^3$
3. $1s^2 2s^2 2p^6 3s^1$
4. $1s^2 2s^2 2p^6$

75 Abnormally high ionization enthalpy of B as depicted in the graph below can be due to :



1. Completely filled 2p subshell.
2. Completely filled 2s subshell.
3. Completely filled 3d subshell.
4. Completely filled 4f subshell.

76 IP_1 and IP_2 for Mg are 178 and 348 Kcal mol^{-1} respectively. The energy required for the reaction, $Mg \rightarrow Mg^{2+} + 2e^-$ is :
1. +170 Kcal mol^{-1}
2. +526 Kcal mol^{-1}
3. -170 Kcal mol^{-1}
4. -526 Kcal mol^{-1}

77 The incorrect statement about ionization enthalpy is -

1.	Ionization enthalpy increases for each successive electron.
2.	Noble gases have the highest ionization enthalpy.
3.	A big jump in ionization enthalpy indicates a stable configuration.
4.	Ionization enthalpy of oxygen is higher than that of nitrogen.

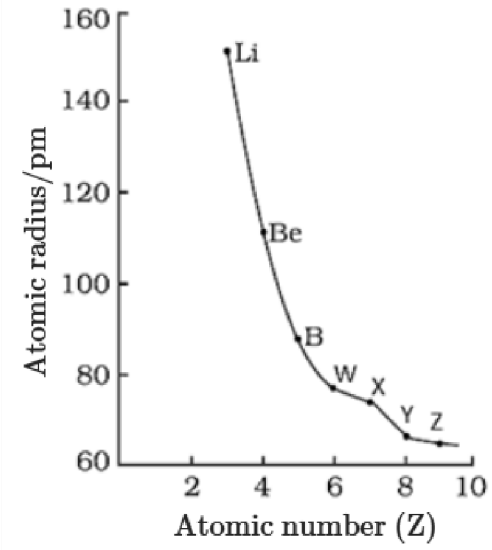
78 For the second-period elements, the correct increasing order of first ionisation enthalpy is:
1. Li < Be < B < C < O < N < F < Ne
2. Li < Be < B < C < N < O < F < Ne
3. Li < B < Be < C < O < N < F < Ne
4. Li < B < Be < C < N < O < F < Ne

79 Amongst the following electronic configurations, highest ionisation energy is represented by-
1. $[Ne]3s^2 3p^3$
2. $[Ne]3s^2 3p^2$
3. $[Ar]3d^{10} 4s^2 4p^3$
4. $[Ne]3s^2 3p^1$

80 The values of first ionization enthalpies for two isotopes would be -

1.	Same.
2.	Different .
3.	Same values but positive for first and negative for the second.
4.	Same values but negative for first and positive for the second.

81



The correct order of ionization energy of W, X, Y and Z is-

1.	W > X > Y > Z	2.	W < X < Y > Z
3.	W < X > Y< Z	4.	W > X > Y< Z

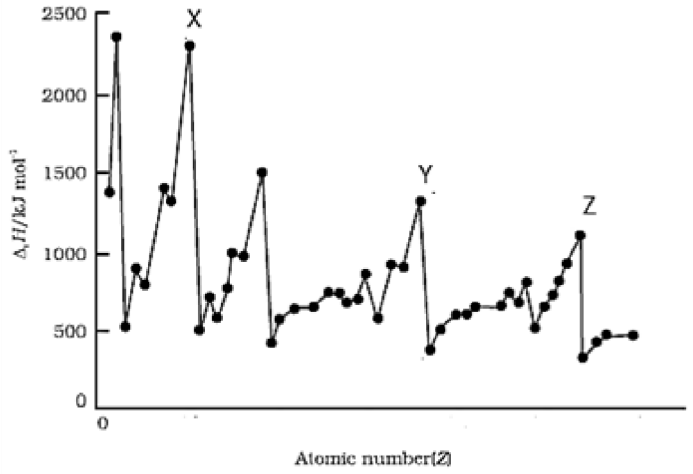
82 The first ionisation enthalpies of Na, Mg, Al, and Si are in the order of-

1. Na < Al < Mg < Si
2. Na > Mg > Al > Si
3. Na < Mg < Al < Si
4. Na > Mg > Al < Si

83 Element that has the greatest tendency to lose an electron is :

1. F
2. Fr
3. S
4. Be

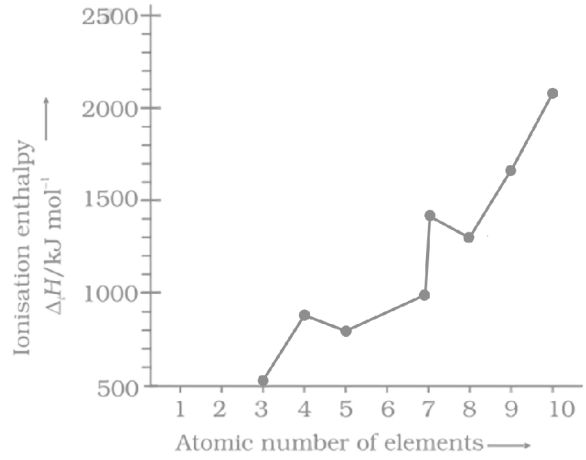
84 In the following graph of variation of ionization energy with atomic number, X, Y, and Z represent elements.

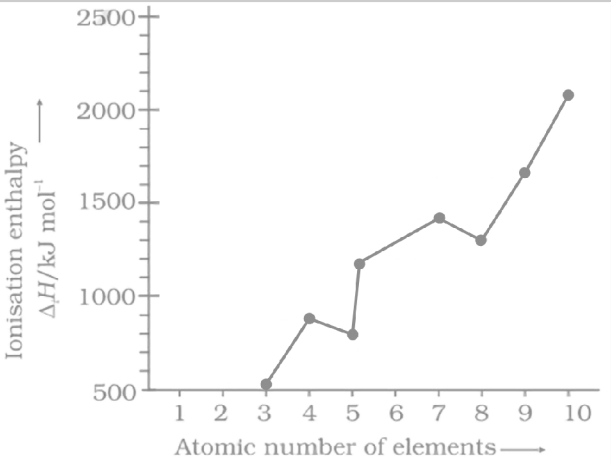


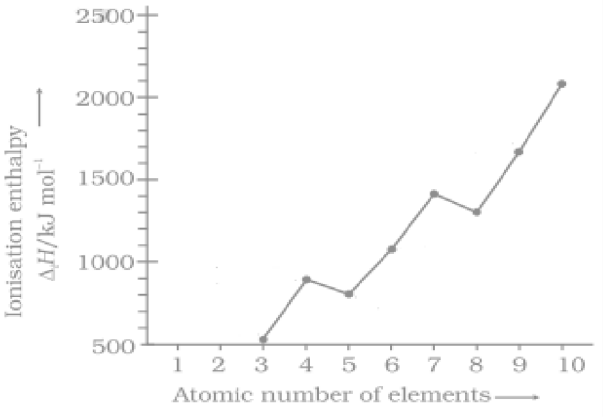
The group number of X, Y, and Z elements is:

1. 1st group
2. 15th group
3. 17th group
4. 18th group

85 The correct graph depicting ionization energies for 2nd period elements is-

1. 

2. 

3. 

4. None of the above

IONIZATION ENERGY (IE) - LEVEL II

86 The energy of an electron in the ground state of the hydrogen atom is $-2.18 \times 10^{-18} J$. The ionization enthalpy of atomic hydrogen in terms of J mol^{-1} is -

1. 2.81×10^6 J mol^{-1}
2. 1.31×10^6 J mol^{-1}
3. 2.31×10^6 J mol^{-1}
4. 1.81×10^6 J mol^{-1}

87 If the ionization enthalpy and negative electron gain enthalpy of an element are 275 and 86 kcal mol^{-1} respectively, then the electronegativity of the element on the Pauling scale is:

1. 2.8
2. 0.0
3. 4.0
4. 2.6

88 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 :

1. Q: Alkaline earth metal.
2. P: Alkali metal.
3. R: s-block element.
4. All three: P,Q & R belong to the same period.

89 The element having very high electron affinity but zero ionisation enthalpy is :-

1. He (due to inert gas configuration)
2. Be (due to fully filled subshell)
3. H (due to presence of allotropes)
4. None of the above

90 1st (ΔH_1) and 2nd (ΔH_2) Ionization Enthalpies (in kJ mol^{-1}) and the ($\Delta_{eg}H$) Electron Gain Enthalpy (in kJ mol^{-1}) of a few elements are given below:

Elements	ΔH_1	ΔH_2	$\Delta_{eg}H$
I	520	7300	-60
II	419	3051	-48
III	1681	3374	-328
IV	1008	1846	-295
V	2372	5251	+48
VI	738	1451	-40

The most reactive metal is-

1.	VI	2.	III
3.	I	4.	II

91 The atomic species that has the maximum ionization energy is :

1.	O^-	2.	S^-
3.	Se^-	4.	Te^-

ELECTRON AFFINITY (EA) - LEVEL I

92 Among halogens, the correct order of amount of energy released in electron gain (electron gain enthalpy) is-

1.	F > Cl > Br > I	2.	F < Cl < Br < I
3.	F < Cl > Br > I	4.	F < Cl < Br < I

93 The formation of the oxide ion O^{2-} (g), from the oxygen atom requires first an exothermic and then an endothermic step as shown below,

$O(g) + e^- \rightarrow O^-; \Delta_f H^0 = -141$ kJ mol^{-1}

$O^-(g) + e^- \rightarrow O^{2-}(g); \Delta_f H^0 = +780$ kJ mol^{-1}

Thus, the process of formation of O^{2-} in the gas phase is unfavorable even though O^{2-} is isoelectronic with neon. It is due to the fact that:

1.	Electron repulsion outweighs the stability gained by achieving noble gas configuration.
2.	O^- ion has a comparatively smaller size than the oxygen atom.
3.	Oxygen is more electronegative.
4.	Addition of electrons in oxygen results in a large size of the ion.

94 The correct order of increasing electron gain enthalpy with a negative sign for the elements O, S, F, and Cl is :
1. Cl < F < S < O
2. O < S < F < Cl
3. F < S < O < Cl
4. S < O < Cl < F

95 Which of the following represents the correct order of increasing electron affinity for the elements, O, S, F and Cl?
1. Cl < F < O < S
2. O < S < F < Cl
3. F < S < O < Cl
4. S < O < Cl < F

96 The electron gain enthalpies of halogens in kJ mol^{-1} are given below.
F =-332, Cl =-349, Br =-325, I =-295.
The lesser negative value for F as compared to that of Cl is due to:
1. Strong electron-electron repulsions in the compact 2p-subshell of F.
2. Weak electron-electron repulsions in the bigger 3p-subshell of Cl.
3. Smaller electronegativity value of F than Cl.
4. 1 & 2 both

97 The reactivity of alkali metals increases, whereas halogen decreases down the group, because -

1.	On moving down, ionization enthalpy decreases in group 1 while the electron gain enthalpy becomes less negative in group 17.
2.	On moving down, ionization enthalpy increases in group 1 while the electron gain enthalpy becomes less negative in group 17.
3.	On moving down, ionization enthalpy increases in group 1 while the electron gain enthalpy becomes less positive in group 17.
4.	On moving down, ionization enthalpy decreases in group 17 while the electron gain enthalpy becomes less negative in group 1.

98 The incorrect match among the following is -
1. B < C < N < O (increasing first ionisation enthalpy)
2. I < Br < F < Cl (increasing electron gain enthalpy)
3. Li < Na < K < Rb (increasing metallic radius)
4. $Al^{3+} < Mg^{2+} < Na^{+} < F^{-}$ (increasing ionic size)

99 The correct order for electron affinity of halogens is :
1. Br > F
2. F > Cl
3. Br > Cl
4. F > I

100 An element with higher negative electron gain enthalpy in the given pair is-
(i) O or F (ii) F or Cl
1. O, Cl
2. F, F
3. O, F
4. F, Cl

101

Elements	ΔH_1	ΔH_2	$\Delta_{eg}H$
I	520	7300	-60
II	419	3051	-48
III	1681	3374	-328
IV	1008	1846	-295
V	2372	5251	+48
VI	738	1451	-40

The least reactive element based on the above data is :
1. III
2. IV
3. II
4. V

102 Element of the third period that is expected to exhibit positive electron gain enthalpy is:
1. Na
2. Al
3. Cl
4. Ar

103 The group of metals having positive value of electron gain enthalpy is :-
1. Cr, Fe
2. Mn, Zn
3. Fe, Zn
4. Cr, Mn

CHAPTER 3 - CLASSIFICATION OF ELEMENTS AND PERIODICITY

ELECTRON AFFINITY (EA) - LEVEL II

104 The process that requires absorption of energy is:

1. $N \rightarrow N^-$
2. $F \rightarrow F^-$
3. $Cl \rightarrow Cl^-$
4. $H \rightarrow H^-$

105 Electronic configuration of four elements A, B, C and D are given below :

A. $1s^2 2s^2 2p^6$

B. $1s^2 2s^2 2p^4$

C. $1s^2 2s^2 2p^6 3s^1$

D. $1s^2 2s^2 2p^5$

The correct order of increasing tendency to gain electron is :

1.	A < C < B < D	2.	A < B < C < D
3.	D < B < C < A	4.	D < A < B < C

106 Incorrect statement about characteristics regarding halogens is :

1. Ionization energy decreases with increase in atomic number.
2. Electronegativity decreases with increase in atomic number.
3. Electron affinity decreases with increase in atomic number.
4. Enthalpy of fusion increases with increase in atomic number.

107 Element/Ion that has the highest electron affinity is :

1.	F^-	2.	O^-
3.	O	4.	Na

108

Assertion:	Fluorine forms only one oxoacid, HOF.
Reason:	Fluorine has a small size and high electronegativity.

1. Both assertion and reason are true and the reason is the correct explanation of assertion.
2. Both assertion and reason are true and the reason is not the correct explanation of assertion.
3. Assertion is true but the reason is false.
4. Assertion is false but the reason is true.

ELECTRONEGATIVITY - LEVEL I

109 The basic difference between the terms electron gain enthalpy (E_a) and electronegativity (E_N) is -

1.	E_a is the tendency to lose electrons while E_N is the tendency to repel the shared pairs of electrons.
2.	E_a is the tendency to gain neutrons while E_N is the tendency to attract the shared pairs of electrons.
3.	E_a is the tendency to donate electrons while E_N is the tendency to attract the shared pairs of molecules.
4.	E_a is the tendency to gain electrons while E_N is the tendency to attract the shared pairs of electrons.

110 The electronegativity of the following elements increases in the order of:

1.	S < P < N < O	2.	P < S < N < O
3.	N < O < P < S	4.	N < P < S < O

111 Allred Rochow's scale is related to:-

1. Electronegativity, radius, and Z^*
2. Resonance energy of the molecule, ionisation potential and electron affinity.
3. Bond Polarity, diagonal relationship and periodicity.
4. None of the above.

112 The incorrect order of electronegativity is :

1.	Cl > S > P > Si	2.	Si > Al > Mg > Na
3.	F > Cl > Br > I	4.	None of the above.

113 The statement that "the electronegativity of N on the Pauling scale is 3.0 in all the nitrogen compounds" is incorrect because -

1. Electronegativity of an element is a variable property.
2. Pauling scale is not used to measure electronegativity.
3. The electronegativity of N on the Pauling scale is 12.0
4. None of the above.

ELECTRONEGATIVITY - LEVEL II

114 Percentage ionic character, if electronegativity value of X=2.1 & Y=3.0, is :-

1.	20	2.	30
3.	17	4.	23

115 Incorrect statement about metal is:
1. Metals can donate electrons.
2. Metals form ionic compounds.
3. Metals are more electronegative.
4. Metals have less ionization energy.

NATURE OF COMPOUND - LEVEL I

116 The correct order of metallic character of elements B, Al, Mg and K is :
1. B > Al > Mg > K
2. Al > Mg > B > K
3. Mg > Al > K > B
4. K > Mg > Al > B

117 The increasing order of non-metallic character of the elements N, P, O, and S is:
1. P < S < N < O
2. O < S < N < P
3. O < N < S < P
4. N < S < O < P

118 Magnesium reacts with an element (X) to form an ionic compound. If the ground state electronic configuration of (X) is $1s^2 2s^2 2p^3$, the simplest formula for this compound is:
1. Mg_2X_3
2. MgX_2
3. Mg_2X
4. Mg_3X_2

119 The correct order among the following options is:
1. F > N > C > Si > Ga - Non-metallic character.
2. F > Cl > O >N - Oxidising property.
3. C < Si > P > N - Electron affinity value.
4. All of the above.

120 The order of basic character of given oxides is:
1. $Na_2O > MgO > Al_2O_3 > CuO$
2. $MgO > Al_2O_3 > CuO > Na_2O$
3. $Al_2O_3 > MgO > CuO > Na_2O$
4. $CuO > Na_2O > MgO > Al_2O_3$

121 The formula of the stable binary compounds that would be formed by an element having atomic number 71 and fluorine-
1. LuF_6
2. LuF_2
3. LuF_3
4. LuF_4

NATURE OF COMPOUND - LEVEL II

122 Considering the elements B, C, N, F, and Si; the correct order of their non-metallic 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