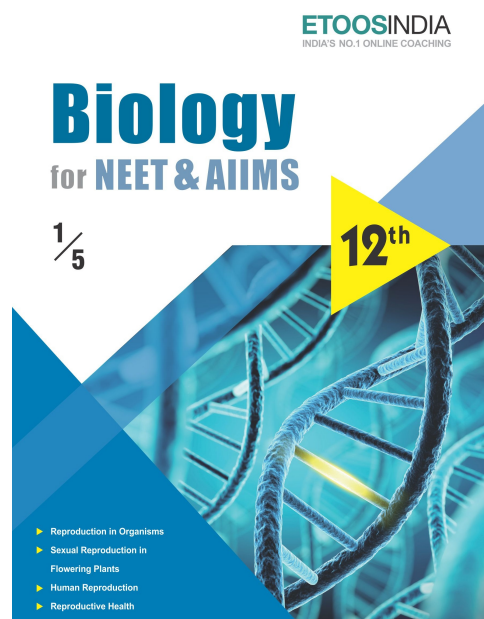
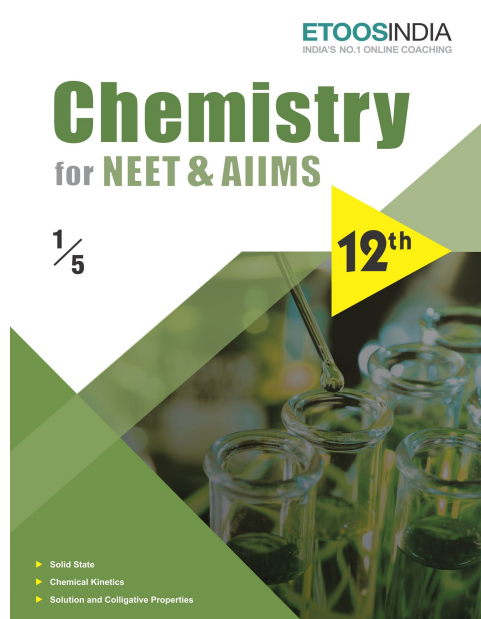
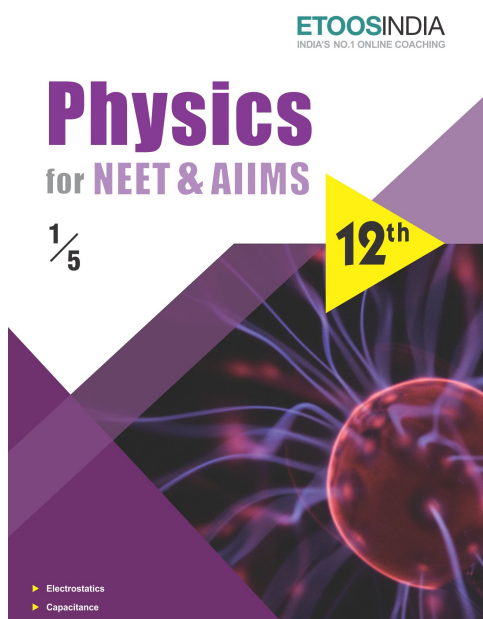
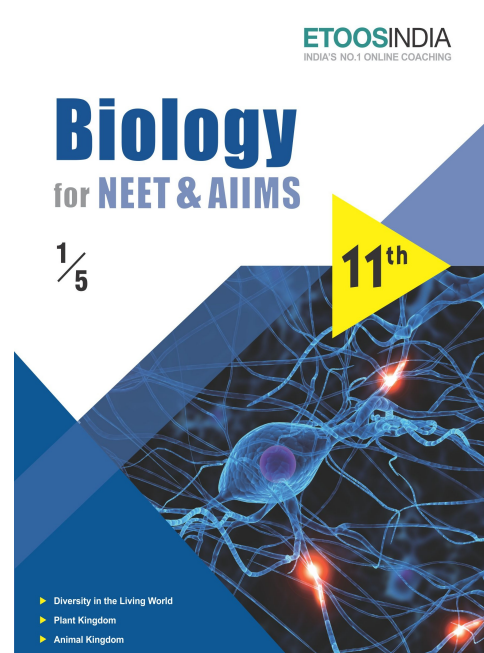
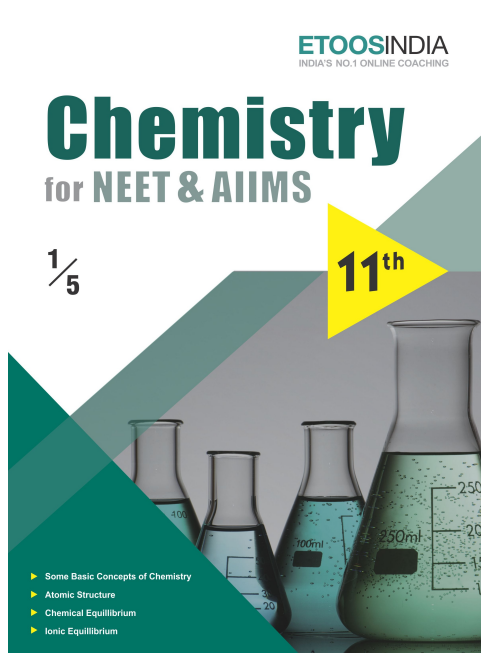
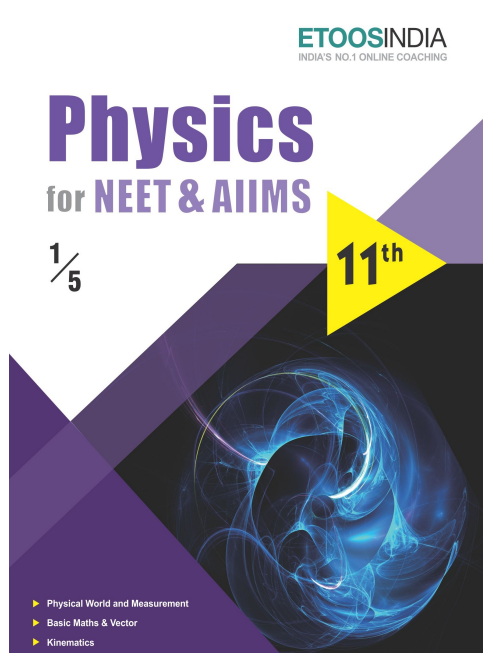


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PERIODIC TABLE

If you memorize the periodic table it will speed you up if you're a chemist, but by and large, the reason you have a periodic table is so that you can store that information outside of your body. That way it frees up some part of your brain to do something else.

“BILLNYE”

INTRODUCTION

The chapter gives an insight to the contribution made by different scientists to arrange the known elements in a manner which could be smooth and informative and the elements properties could justify its position. Thus what we see in the form of modern periodic table today follow a logical sequence of electronic configuration capable enough to explain the trend in physical and chemical properties of the elements.

At present 118 elements are known. of them, the recently discovered elements are man made. Efforts to synthesise new elements are continuing. With such a large number of elements it is very difficult to study individually the chemistry of all these elements and their innumerable compounds individually. To ease out this problem, scientists searched for a systematic way to organise their knowledge by classifying the elements.

Etoos Tips & Formulas

important facts to remember

1.	Lowest electronegativity	:	Cs
2.	Highest electronegativity	:	F
3.	Highest ionisation potential	:	He
4.	Lowest ionisation potential	:	Cs
5.	Lowest electron affinity	:	Noble gases
6.	Highest electron affinity	:	Chlorine
7.	Least electropositive element	:	F
8.	Lowest m. pt. metal	:	Hg
9.	Highest m. pt. and b. pt. metal	:	W (Tungsten)
10.	Lowest m. pt. and b. pt. non metal	:	He
11.	Notorious element	:	Hydrogen
12.	Lightest element	:	Hydrogen
13.	Smallest atomic size	:	H
14.	Largest atomic size	:	Cs
15.	Largest anionic size	:	I ⁻
16.	Smallest cation	:	H ⁺
17.	Most electropositive element	:	Cs
18.	Element with electronegativity next to Fluorine	:	Oxygen
19.	Group containing maximum no. of gaseous elements in periodic table	:	Zero group
20.	Total number of gaseous elements in periodic table	:	11 (H, N, O, F, Cl, He, Ne, Ar, Kr, Xe, Rn)
21.	Total number of liquid elements in periodic table	:	6 (Ga, Br, Cs, Hg, Fr, Uub)
22.	Liquid element of radioactive nature	:	Fr
23.	Total number of radioactive elements in periodic table	:	25
24.	Volatile d block elements	:	Zn, Cd, Hg, Uub
25.	Element containing no neutron	:	H
26.	Most abundant element on earth	:	Oxygen
27.	Most abundant metal on earth	:	Al
28.	Element having maximum tendency for catenation	:	Carbon
29.	Non metal having highest m. pt., b.pt.	:	Carbon (diamond)
30.	Metals showing highest oxidation number	:	Os (+8), Ru
31.	Most electrovalent compound	:	CsF
32.	Most stable carbonate	:	Cs ₂ CO ₃

SOLVED EXAMPLE

Ex. 1 Following are the valence shell electronic configurations of some elements.

- (i) $3s^2 3p^5$ (ii) $3d^{10} 4s^2$
 (iii) $2s^2 3p^6 4s^1$ (iv) $1s^2 2s^2$

Find out the blocks to which they belong in the periodic table ?

Ans. (i) p-block (ii) d-block
 (iii) s-block (iv) s-block

Sol. The block of the elements depend on the type of sub-shell which receive the last electron. In case of
 (i) it enters in 3p-subshell,
 (ii) z it enters 3d-subshell,
 (iii) it enters 4s-subshell and
 (iv) it enters 2s-subshell.

Ex. 2. A M^{2+} ion derived from a metal in the first transition metal series has four electrons in 3d subshell. What element might M be ?

Ans. Chromium

Sol. Electron configuration of M^{2+} is $[Ar]^{18} 4s^0 3d^4$

\therefore Electron configuration of M is $[Ar]^{18} 4s^1 3d^5$ (and not $4s^2 3d^4$)

So total number of electrons = 24.

Hence, metal M is chromium (Cr).

Ex. 3 Find out the group of the element having the electronic configuration, $1s^2 2s^2 2p^6 3s^2 3p^6 3d^6 4s^2$.

Ans. As last electron enters in d-subshell, therefore this belongs to d-block. For d-block element the group number is equal to the number of valence shell electrons + number of electrons in (n-1) d-subshell.

So, group number = 6 + 2 = 8.

Ex. 4 Arrange the following ions in the increasing order of their size : Be^{2+} , Cl^- , S^{2-} , Na^+ , Mg^{2+} , Br^- ?

Ans. $Be^{2+} < Mg^{2+} < Na^+ < Cl^- < S^{2-} < Br^-$

Sol. Be^{2+} is smaller than Mg^{2+} as Be^{2+} has one shell where as Mg^{2+} has two shells.

Mg^{2+} and Na^+ are isoelectronic species : Ionic radius $\propto 1/\text{nuclear charge}$.

Cl^- and S^{2-} are isoelectronic species : Ionic radius $\propto 1/\text{nuclear charge}$.

Cl^- is smaller than Br^- as Cl^- has three shells where as Br^- has four shells.

Ex. 5 In Column-I, there are given electronic configurations of some elements. Match these with the correct metals given in Column-II :

Column-I	Column-II
(A) ns^2, np^5	(p) Chromium
(B) $(n-1) d^{10}, ns^1$	(q) Copper
(C) $(n-1) d^5, ns^1$	(r) Krypton
(D) $(n-1) d^{10}, ns^2, np^6$	(s) Bromine

Ans. (A) \rightarrow (s); (B) \rightarrow (q); (C) \rightarrow (p); (D) \rightarrow (r).

Sol. (A) $ns^2 np^5$ is general valence shell electron configuration of halogens. So this configuration belongs to bromine.

(B) $(n-1) d^{10} ns^1$; This is electron configuration of d-block elements. As it contains $(n-1) d^{10} ns^1$ configuration it belongs to copper.

(C) $(n-1) d^5 ns^1$; This is electron configuration of d-block elements. As it contains $(n-1) d^5 ns^1$ configuration it belongs to chromium.

(D) Noble gases has valence shell electron configuration $ns^2 np^6$, so it belongs to krypton.

Ex. 6 Match the metals given in Column-II with their type given in Column-I :

Column-I	Column-II
(A) Metalloid	(p) Sulphur
(B) Radioactive	(q) Gold
(C) Transition metal	(r) Arsenic
(D) Chalcogen	(s) Uranium

Ans. (A) \rightarrow (r); (B) \rightarrow (s); (C) \rightarrow (q); (D) \rightarrow (p)

Sol. (A) Arsenic is a metalloid because it behaves as metal (forming cation, $As^{3+} - AsCl_3$) as well as nonmetal (forming anion, $As^{3-} - AsH_3$).

(B) Uranium is a radioactive element.

(C) Those elements which in their neutral atoms or in most common oxidation state have partially filled d-orbitals are called as transition elements. Gold in its +3 oxidation state has electron configuration $[Xe]^{54}, 5d^8 6s^0$.

(D) 16th group elements like oxygen and sulphur are ore forming elements and therefore are called as chalcogens.

Exercise # 1

SINGLE OBJECTIVE

NEET LEVEL

1. Which of the following statement is not correct for the element having electronic configuration $1s^2, 2s^2 2p^6, 3s^1$
 - (A) It is a monovalent electropositive
 - (B) It forms basic oxide
 - (C) It is a non-metal
 - (D) It has low electron affinity
2. Which of these dose not reflect the periodicity of the elements
 - (A) Bonding behaviour
 - (B) Electronegativity
 - (C) Ionization energy
 - (D) Neutron/proton ratio
3. If an atom has electronic configuration $1s^2 2s^2 2p^6 3s^2 3p^6 3d^3 4s^2$, it will be placed in
 - (A) Second group
 - (B) Third group
 - (C) Fifth group
 - (D) Sixth group
4. All the s-block elements of the periodic table are placed in the groups ...
 - (A) IA and IIA
 - (B) IIIA and IVA
 - (C) B sub groups
 - (D) VA to VIIA
5. The electronic configuration of halogen is
 - (A) $ns^2 np^6$
 - (B) $ns^2 np^3$
 - (C) $ns^2 np^5$
 - (D) ns^2
6. The ratio between radii of He^+ ion and H atom is
 - (A) $\frac{1}{2}$
 - (B) 1
 - (C) $\frac{3}{2}$
 - (D) 2
7. The smallest among the following ions is
 - (A) Na^+
 - (B) Mg^{2+}
 - (C) Ba^{2+}
 - (D) Al^{3+}
8. Which is smallest in size
 - (A) O^{2-}
 - (B) C^{4-}
 - (C) F^-
 - (D) N^{3-}
9. Which of the following has largest size
 - (A) Al
 - (B) Al^+
 - (C) Al^{+2}
 - (D) Al^{+3}
10. Of the following, the one with largest size is
 - (A) Cl^-
 - (B) Ar
 - (C) K^+
 - (D) Ca^{2+}
11. Which cation has smallest radius
 - (A) K^+
 - (B) Na^+
 - (C) Li^+
 - (D) Be^{2+}
12. 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) $O^{2-} > O > F^- > F$
13. Which of the following has the smallest size
 - (A) Na^+
 - (B) Mg^{+2}
 - (C) Cl^-
 - (D) F^-
14. Which of the following is largest
 - (A) Cl^-
 - (B) S^{2-}
 - (C) Na^+
 - (D) F^-
15. Which of the following property displays progressive increase down a group in the Bohr's periodic table
 - (A) Electronegativity
 - (B) Electron affinity
 - (C) Ionization potential
 - (D) Size of the atom
16. Atomic radii of fluorine and neon in angstrom units are respectively given by
 - (A) 0.762, 1.60
 - (B) 1.60, 1.60
 - (C) 0.72, 0.72
 - (D) None of these values
17. Which ion has greatest radius in the following
 - (A) H^-
 - (B) F^-
 - (C) Br^-
 - (D) I^-
18. Which has the maximum atomic radius
 - (A) Al
 - (B) Si
 - (C) P
 - (D) Mg
19. Which one of the following ions has the highest value of ionic radius
 - (A) O^{2-}
 - (B) B^{3+}
 - (C) Li^+
 - (D) F^-
20. On going down a main sub-group in the periodic table (example Li to Cs in IA or Be to Ra in IIA), the expected trend of changes in atomic radius is a
 - (A) Continuous increase
 - (B) Continuous decrease
 - (C) Periodic one, an increase followed by a decrease
 - (D) A decrease followed by increase

Exercise # 2

SINGLE OBJECTIVE

AIIMS LEVEL

- Atomic number of Ag is 47. In the same group, the atomic numbers of elements placed above and below Ag in Long form of periodic table will be :
 (A) 29, 65 (B) 39, 79
 (C) 29, 79 (D) 39, 65
- Element with electronic configuration as $[\text{Ar}] 3d^5 4s^1$ is placed in ___ in Modern periodic table :
 (A) IA (1st group), s-block
 (B) IB (7th group), d-block
 (C) VIB (8th group), d-block
 (D) VIB (6th group), d-block
- In modern periodic table, the element with atomic number $Z = 118$ will be :
 (A) Uuo ; Ununoctium ; alkaline earth metal
 (B) Uno ; Unniloctium ; transition metal
 (C) Uno ; Unniloctium ; alkali metal
 (D) Uuo ; Ununoctium ; noble gas
- Which of the following is not an actinoid :
 (A) Curium ($Z=96$) (B) Californium ($Z=98$)
 (C) Uranium ($Z=92$) (D) Terbium ($Z=65$)
- Which of the following statements is not correct regarding hydrogen :
 (A) It resembles halogens in some properties.
 (B) It resembles alkali metals in some properties.
 (C) It can be placed in 17th group of Modern periodic table.
 (D) It cannot be placed in 1st group of Modern periodic table.
- The order of screening effect of electrons of s, p, d and f orbitals of a given shell of an atom on its outer shell electrons is
 (A) $s > p > d > f$ (B) $f > d > p > s$
 (C) $p < d < s > f$ (D) $f > p > s > d$
- Which of the following is/are generally true regarding effective nuclear charge (Z_{eff}) :
 (A) It increases on moving left to right in a period.
 (B) It remains almost constant on moving top to bottom in a group.
 (C) For isoelectronic species, as Z increases, Z_{eff} decreases.
 (D) Both (A) and (B).
- Which of the following is the correct order of size of the given species :
 (A) $I > I^+ > I^-$ (B) $I^+ > I^- > I$
 (C) $I > I^- > I^+$ (D) $I^- > I > I^+$
- Match the correct atomic radius with the element :

S.No.	Element	Code	Atomic radius (pm)
(i)	Be	(p)	74
(ii)	C	(q)	88
(iii)	O	(r)	111
(iv)	B	(s)	77
(v)	N	(t)	66

 (A) (i) – r, (ii) – q, (iii) – t, (iv) – s, (v) – p
 (B) (i) – t, (ii) – s, (iii) – r, (iv) – p, (v) – q
 (C) (i) – r, (ii) – s, (iii) – t, (iv) – q, (v) – p
 (D) (i) – t, (ii) – p, (iii) – r, (iv) – s, (v) – q
- Select correct statement(s) about radius of an atom :
 (A) Values of Vander waal's radii are larger than those of covalent radii because the Vander waal's forces are much weaker than the forces operating between atoms in a covalently bonded molecule.
 (B) The metallic radii are smaller than the Vander waal's radii, since the bonding forces in the metallic crystal lattice are much stronger than the Vander waal's forces.
 (C) Both (A) & (B)
 (D) None of these
- Which of the following order of atomic / ionic radius is not correct ?
 (A) $F < Cl < Br < I$ (B) $Y^{3+} > Sr^{2+} > Rb^+$
 (C) $Nb \approx Ta$ (D) $Li > Be > B$
- The size of isoelectronic species F^- , Ne and Na^+ is affected by :
 (A) nuclear charge (Z)
 (B) valence principal quantum number (n)
 (C) electron-electron interaction in the outer orbitals
 (D) none of the factors because their size is the same.
- Which of the following order of radii is correct :
 (A) $Li < Be < Mg$ (B) $H^+ < Li^+ < H^-$
 (C) $O < F < Ne$ (D) $Li < Na < K < Cs < Rb$
- Which one of the following statements is incorrect in relation to ionisation enthalpy ?
 (A) Ionization enthalpy increases for each successive electron.
 (B) The greatest increase in ionization enthalpy is experienced on removal of electron from core of noble gas configuration.
 (C) End of valence electrons is marked by a big jump in ionization enthalpy.
 (D) Removal of electron from orbitals bearing lower n value is easier than from orbitals having higher n value.

Exercise # 3

PART - 1

MATRIX MATCH COLUMN

1. Match the electronic configurations of the elements given in **column-(I)** with their correct characteristic(s) (i.e. properties for given configuration) given in **column-(II)**.

Column-I

- (A) $1s^2$
 (B) $1s^2 2s^2 2p^5$
 (C) $1s^2 2s^2 2p^6 3s^2 3p^5$
 (D) $1s^2 2s^2 2p^2$

Column-II

- (p) Element shows highest negative oxidation state.
 (q) Element shows highest first ionisation enthalpy.
 (r) Element shows highest electronegativity on Pauling scale.
 (s) Element shows maximum electron gain enthalpy (most exothermic).

2. Match Column-I (atomic number of elements) with Column-II (position of element in periodic table) and select the correct answer using the codes given below :

Column-I

- (A) 19
 (B) 22
 (C) 32
 (D) 64

Column-II

- (p) p-block
 (q) f-block
 (r) d-block
 (s) s-block

3. Match the species/elements listed in column I with their characteristic listed in column II.

Column I

- (A) SO_2, NO_3^-, CO_3^{2-}
 (B) Ge, As, Sb
 (C) Ar, Kr, Xe
 (D) Ca, Sr, Ba

Column II

- (p) Semi-metals
 (q) Inert gases
 (r) Isoelectronic species
 (s) Alkaline earth metals

4. Match the values of ionization energy and electron gain enthalpi listed in column I with characteristic(s) of elements listed in column II.

Column I

- | | | |
|-----------------|-----------------|---|
| $\Delta_1 H_1,$ | $\Delta_1 H_2,$ | $\Delta_{eg} H(\text{in kJ mol}^{-1}),$ |
| (A) 2372 | 5251 | +48 |
| (B) 419 | 3051 | -48 |
| (C) 1681 | 3374 | -333 |
| (D) 1008 | 1846 | -295 |

Column II

- (p) Elements which acts as a strong reducing agent
 (q) Elements which exists as a monoatomic molecule
 (r) Least reactive non-metal
 (s) Elements which acts as a strong oxidising agent
 (t) Element which oxide is a stronger basic in nature

Exercise # 4

PART - 1

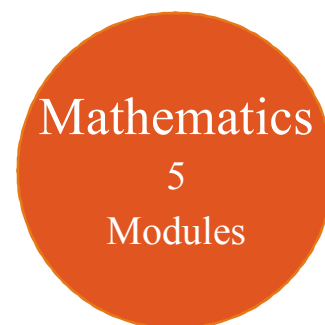
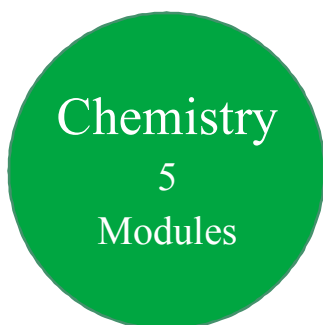
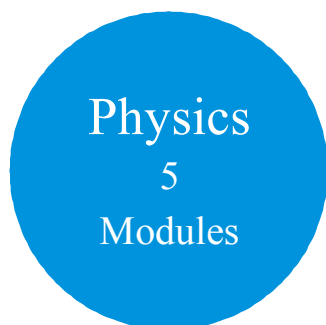
PREVIOUS YEAR (NEET/AIPMT)

1. Correct order of 1st ionisation potential (IP) among following elements Be, B, C, N, O is
[CBSE AIPMT 2001]
- (A) $B < Be < C < O < N$
 (B) $B < Be < C < N < O$
 (C) $Be < B < C < N < O$
 (D) $Be < B < C < O < N$
2. An atom has electronic configuration $1s^2, 2s^2 2p^6, 3s^2 3p^6 3d^3, 4s^2$, you will place it in
[CBSE AIPMT 2002]
- (A) fifth group
 (B) fifteenth group
 (C) second group
 (D) third group
3. Which of the following order is wrong ?
[CBSE AIPMT 2002]
- (A) $NH_3 < PH_3 < AsH_3$ – Acidic
 (B) $Li < Be < B < C$ – 1st Ionisation potential
 (C) $Al_2O_3 < MgO < Na_2O < K_2O$ – Basic
 (D) $Li^+ < Na^+ < K^+ < Cs^+$ – Ionic radius
4. The ions $O^{2-}, F^-, Na^+, Mg^{2+}$ and Al^{3+} are isoelectronic. Their ionic radii show
[CBSE AIPMT 2003]
- (A) an increase from O^{2-} to F^- and then decrease from Na^+ to Al^{3+}
 (B) a decrease from O^{2-} to F^- and then increase from Na^+ to Al^{3+}
 (C) a significant increase from O^{2-} to Al^{3+}
 (D) a significant decrease from O^{2-} to Al^{3+}
5. Ionic radii are [CBSE AIPMT 2004]
- (A) inversely proportional to effective nuclear charge
 (B) inversely proportional to square of effective nuclear charge
 (C) directly proportional to effective nuclear charge
 (D) directly proportional to square of effective nuclear charge
6. Identify the correct order of the size of the following.
[CBSE AIPMT 2007]
- (A) $Ca^{2+} < K^+ < Ar < S^{2-} < Cl^-$
 (B) $Ca^{2+} < K^+ < Ar < Cl^- < S^{2-}$
 (C) $Ar < Ca^{2+} < K^+ < Cl^- < S^{2-}$
 (D) $Ca^{2+} < Ar < K^+ < Cl^- < S^{2-}$
7. Which of the following electronic configuration of an atom has the lowest ionisation enthalpy ?
[CBSE AIPMT 2007]
- (A) $1s^2, 2s^2 2p^5$ (B) $1s^2, 2s^2 2p^3$
 (C) $1s^2, 2s^2 2p^5, 3s^1$ (D) $1s^2, 2s^2 2p^6$
8. The correct order of decreasing second ionisation enthalpy of Ti(22), Cr(24) and Mn(25) is
[CBSE AIPMT 2008]
- (A) $Cr > Mn > V > Ti$
 (B) $V > Mn > Cr > Ti$
 (C) $Mn > Cr > Ti > V$
 (D) $Ti > V > Cr > Mn$
9. Which of the following oxides is not expected to react with sodium hydroxide?
[CBSE AIPMT 2009]
- (A) B_2O_3 (B) CaO
 (C) SiO_2 (D) BaO
10. Which one of the elements with the following outer orbital configurations may exhibit the largest number of oxidation states? [CBSE AIPMT 2009]
- (A) $3d^3, 4s^2$ (B) $3d^5, 4s^1$
 (C) $3d^5, 4s^2$ (D) $3d^2, 4s^2$
11. Amongst the elements with following electronic configurations, which one may have the highest ionisation energy ? [CBSE AIPMT 2009]
- (A) $[Ne] 3s^2 3p^3$ (B) $[Ne] 3s^2 3p^2$
 (C) $[Ar] 3d^{10}, 4s^2 4p^3$ (D) $[Ne] 3s^2 3p^1$
12. Which of the following represents the correct order of increasing electron gain enthalpy with negative sign for the elements O, S, F and Cl?
[CBSE AIPMT 2010]
- (A) $Cl < F < O < S$
 (B) $O < S < F < Cl$
 (C) $F < S < O < Cl$
 (D) $S < O < Cl < F$
13. The correct order of the decreasing ionic radii among the following isoelectronic species is
[CBSE AIPMT 2010]
- (A) $Ca^{2+} > K^+ > S^{2-} > Cl^-$
 (B) $Cl^- > S^{2-} > Ca^{2+} > K^+$
 (C) $S^{2-} > Cl^- > K^+ > Ca^{2+}$
 (D) $K^+ > Ca^{2+} > Cl^- > S^{2-}$

STRAIGHT OBJECTIVE TYPE

- Consider the following statements;
 (I) Rutherford name was associated with the development of periodic table.
 (II) A metal M having electronic configuration $1s^2, 2s^2, 2p^6, 3s^2, 3p^6, 3d^{10}, 4s^1$ is d-block element.
 (III) Diamond is not an element.
 (IV) The electronic configuration of the most electronegative element is $1s^2, 2s^2, 2p^5$, and select the correct one from the given codes.
 (A) I, II, IV (B) I, II, III, IV (C) II, IV (D) I, III, IV
- The correct order of second ionisation potential of carbon, nitrogen, oxygen and flourine is :
 (A) $C > N > O > F$ (B) $O > N > F > C$ (C) $O > F > N > C$ (D) $F > O > N > C$
- The electron gain enthalpies of halogens in kJ/mol are as given below.
 $F = -332, Cl = -349, Br = -324, I = -295$
 The less negative value for F as compared to that of Cl is due to :
 (A) strong electron-electron repulsions in the compact 2p-subshell of F.
 (B) weak electron-electron repulsions in the compact 2p- subshell of Cl
 (C) smaller electronegativity value of F than Cl
 (D) (A) and (B) both
- Which of the following statement is not correct ?
 (A) The first ionisation energies (in kJ/mol) of carbon, silicon, germaniu, tin and lead are 1086, 786, 761, 708 and 715 respectively.
 (B) Down the group, electronegativity decreases from B to Tl in boron family.
 (C) Among oxides of the elements of carbon family, CO is neutraql, GeO is acidic and SnO is amphoteric.
 (D) The 4f- and 5f- inner transition elements are placed separately at the bottom of the periodic table to maintain its structure.
- Which of the following order is correct ?
 (A) $F > N > C > Si > Ga$ – non-metallic character. (B) $F > Cl > O > N$ – oxidising property.
 (C) $C < Si > P > N$ – electron affinity value. (D) All of these.
- If the same element is forming oxides in different oxidation state then :
 (A) that oxide will be neutral in nature in which element will be in its highest oxidation state.
 (B) that oxide will be highest acidic in nature in which element will be in the highest oxidation state.
 (C) that oxide will be amphoteric in nature in which element will be in the highest oxidation state.
 (D) that oxide will be higly basic in nature in which element will be in the highest oxidation state.
- What will be the order of Ist ionisation energy
 (A) $Li > Na > K$ (B) $K > Li > Na$ (C) $Na > Li > K$ (D) $Li > K > Na$
- Which of the following configurations represents atoms of the elements having the highest second ionization energy
 (A) $1s^2 2s^2 2p^4$ (B) $1s^2 2s^2 2p^6$ (C) $1s^2 2s^2 2p^6 3s^1$ (D) $1s^2 2s^2 2p^6 3s^2$
- The first ionization potentials in electron volts of nitrogen and oxygen atoms are respectively given by
 (A) 14.6, 13.6 (B) 13.6, 14.6 (C) 13.6, 13.6 (D) 14.6, 14.6
- The elements which occupy the peaks of ionisation energy curve, are
 (A) Na, K, Rb, Cs (B) Na, Mg, Cl, I (C) Cl, Br, I, F (D) He, Ne, Ar, Kr

11th Class Modules Chapter Details



PHYSICS	CHEMISTRY	BIOLOGY
<p>Module-1</p> <ol style="list-style-type: none"> 1. Physical World & Measurements 2. Basic Maths & Vector 3. Kinematics <p>Module-2</p> <ol style="list-style-type: none"> 1. Law of Motion & Friction 2. Work, Energy & Power <p>Module-3</p> <ol style="list-style-type: none"> 1. Motion of system of particles & Rigid Body 2. Gravitation <p>Module-4</p> <ol style="list-style-type: none"> 1. Mechanical Properties of Matter 2. Thermal Properties of Matter <p>Module-5</p> <ol style="list-style-type: none"> 1. Oscillations 2. Waves 	<p>Module-1(PC)</p> <ol style="list-style-type: none"> 1. Some Basic Concepts of Chemistry 2. Atomic Structure 3. Chemical Equilibrium 4. Ionic Equilibrium <p>Module-2(PC)</p> <ol style="list-style-type: none"> 1. Thermodynamics & Thermochemistry 2. Redox Reaction 3. States Of Matter (Gaseous & Liquid) <p>Module-3(IC)</p> <ol style="list-style-type: none"> 1. Periodic Table 2. Chemical Bonding 3. Hydrogen & Its Compounds 4. S-Block <p>Module-4(OC)</p> <ol style="list-style-type: none"> 1. Nomenclature of Organic Compounds 2. Isomerism 3. General Organic Chemistry <p>Module-5(OC)</p> <ol style="list-style-type: none"> 1. Reaction Mechanism 2. Hydrocarbon 3. Aromatic Hydrocarbon 4. Environmental Chemistry & Analysis Of Organic Compounds 	<p>Module-1</p> <ol style="list-style-type: none"> 1. Diversity in the Living World 2. Plant Kingdom 3. Animal Kingdom <p>Module-2</p> <ol style="list-style-type: none"> 1. Morphology in Flowering Plants 2. Anatomy of Flowering Plants 3. Structural Organization in Animals <p>Module-3</p> <ol style="list-style-type: none"> 1. Cell: The Unit of Life 2. Biomolecules 3. Cell Cycle & Cell Division 4. Transport in Plants 5. Mineral Nutrition <p>Module-4</p> <ol style="list-style-type: none"> 1. Photosynthesis in Higher Plants 2. Respiration in Plants 3. Plant Growth and Development 4. Digestion & Absorption 5. Breathing & Exchange of Gases <p>Module-5</p> <ol style="list-style-type: none"> 1. Body Fluids & Its Circulation 2. Excretory Products & Their Elimination 3. Locomotion & Its Movement 4. Neural Control & Coordination 5. Chemical Coordination and Integration

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12th Class Modules Chapter Details

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Modules

Chemistry
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Modules

Mathematics
5
Modules

PHYSICS	CHEMISTRY	BIOLOGY
<p>Module-1</p> <ol style="list-style-type: none"> 1. Electrostatics 2. Capacitance <p>Module-2</p> <ol style="list-style-type: none"> 1. Current Electricity 2. Magnetic Effect of Current and Magnetism <p>Module-3</p> <ol style="list-style-type: none"> 1. Electromagnetic Induction 2. Alternating Current <p>Module-4</p> <ol style="list-style-type: none"> 1. Geometrical Optics 2. Wave Optics <p>Module-5</p> <ol style="list-style-type: none"> 1. Modern Physics 2. Nuclear Physics 3. Solids & Semiconductor Devices 4. Electromagnetic Waves 	<p>Module-1(PC)</p> <ol style="list-style-type: none"> 1. Solid State 2. Chemical Kinetics 3. Solutions and Colligative Properties <p>Module-2(PC)</p> <ol style="list-style-type: none"> 1. Electrochemistry 2. Surface Chemistry <p>Module-3(IC)</p> <ol style="list-style-type: none"> 1. P-Block Elements 2. Transition Elements (d & f block) 3. Co-ordination Compound 4. Metallurgy <p>Module-4(OC)</p> <ol style="list-style-type: none"> 1. HaloAlkanes & HaloArenes 2. Alcohol, Phenol & Ether 3. Aldehyde, Ketone & Carboxylic Acid <p>Module-5(OC)</p> <ol style="list-style-type: none"> 1. Nitrogen & Its Derivatives 2. Biomolecules & Polymers 3. Chemistry in Everyday Life 	<p>Module-1</p> <ol style="list-style-type: none"> 1. Reproduction in Organisms 2. Sexual Reproduction in Flowering Plants 3. Human Reproduction 4. Reproductive Health <p>Module-2</p> <ol style="list-style-type: none"> 1. Principles of Inheritance and Variation 2. Molecular Basis of Inheritance 3. Evolution <p>Module-3</p> <ol style="list-style-type: none"> 1. Human Health and Disease 2. Strategies for Enhancement in Food Production 3. Microbes in Human Welfare <p>Module-4</p> <ol style="list-style-type: none"> 1. Biotechnology: Principles and Processes 2. Biotechnology and Its Applications 3. Organisms and Populations <p>Module-5</p> <ol style="list-style-type: none"> 1. Ecosystem 2. Biodiversity and Conservation 3. Environmental Issues

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