|  |
| --- |
| **Karan Arora**  **R.L. Institute M: 9416974837**  **Class : XI**  **“PERIODIC CLASSIFICATION OF ELEMENTS”** |

**PREVIOUS YEAR IIT-JEE QUESTIONS**

1. The characteristics of elements X , Y and Z with atomic numbers respectively 33 , 53 and 83 are :

**[Main March 16, 2021 (II)]**

1. X and Y are metalloids and Z is a metal.
2. X is a metalloid, Y is a non-metal and Z is a metal
3. X and Z are non-metals and Y is a metalloid.
4. X , Y and Z are metals.
5. The atomic number of the element unnilennium is : **[Main Sep. 03, 2020 (I)]**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| a) 109 | b) 102 | c) 108 | d) 119 |  | d) 119 |

1. The group number, number of valence electrons and valency of an element with atomic number 15, respectively are : **[Main April 12, 2019 (I)]**

|  |  |  |  |
| --- | --- | --- | --- |
| a) 16 , 5 and 2 | b) 15 , 5 and 3 | c) 16 , 6 and 3 | d) 15 , 6 and 2 |

1. The element with Z = 120 (not yet discovered) will be an/a: **[Main Jan. 12, 2019 (I)]**

|  |  |
| --- | --- |
| a) Inner-transition metal | b) Alkaline earth metal |
| c) Alkali metal | d) Transition metal |

1. Similarity in chemical properties of the atoms of elements in a group of the periodic table is most closely related to : **[Main Online April 12, 2014]**

|  |  |
| --- | --- |
| a) Atomic numbers | b) Atomic masses |
| c) Number of principal energy levels | d) Number of valence electrons |

1. Which of the following has the maximum number of unpaired electrons? **[1996 – 1 mark]**

|  |  |  |  |
| --- | --- | --- | --- |
| a) Mg2+ | b) Ti3+ | c) V3+ | d) Fe2+ |

1. The statements that is not correct for the periodic classification of element is : **[1992 – 1 mark]**
2. The properties of elements are the periodic functions of their atomic numbers.
3. Non-metallic elements are lesser in number than metallic elements
4. The first Ionisation energies of elements along a period do not vary in a regular manner with increase in atomic number
5. For transition elements the d-subshells are filled with electrons monotonically with increase in atomic number.
6. The ionic radii of K+ , Na+ , Al3+ and Mg2+ are in the order : **[Main July 25, 2021 (I)]**

|  |  |  |  |
| --- | --- | --- | --- |
| a) Na+ < K+ < Mg2+ < Al3+ | b) Al3+ < Mg2+ < K+ < Na+ | c) Al3+ < Mg2+ < Na+ < K+ | d) K+ < Al3+ < Mg2+ < Na+ |

1. The set in which compounds have different nature is : **[Main July 20, 2021 (I)]**

|  |  |
| --- | --- |
| a) B(OH)3 and H3PO3 | b) B(OH)3 and Al(OH)3 |
| c) NaOH and Ca(OH)2 | d) Be(OH)2 and Al(OH)3 |

PERIODIC CLASSIFICATION OF ELEMENTS Page No. 1

1. The set of elements that differ in mutual relationship from those of the other sets is :

**[Main March 17, 2021 (II)]**

|  |  |  |  |
| --- | --- | --- | --- |
| a) B – Si | b) Li – Na | c) Be – Al | d) Li – Mg |

1. The first ionisation energy of magnesium is smaller as compared to that of elements X and Y, but higher than that of Z. The elements X , Y and Z respectively are : **[Main March 18, 2021 (II)]**

|  |  |
| --- | --- |
| a) Chlorine , lithium and sodium | b) Argon , lithium and sodium |
| c) Argon , Chlorine and sodium | d) Neon , sodium and chlorine |

1. The correct order of electron gain enthalpy is : **[Main Feb. 26, 2021 (II)]**

|  |  |  |  |
| --- | --- | --- | --- |
| a) O > S > Se > Te | b) Te > Se > S > O | c) S > O > Se > Te | d) S > Se > Te > O |

1. Consider the elements Mg , Al , S , P and Si the correct increasing order of their first ionisation enthalpy is : **[Main Feb. 24, 2021 (I)]**

|  |  |  |  |
| --- | --- | --- | --- |
| a) Mg < Al < Si < S < P | b) Al < Mg < Si < S < P | c) Mg < Al < Si < P < S | d) Al < Mg < S < Si < P |

1. The set that contains atomic numbers of only transition elements is : **[Main Sep. 06, 2020 (I)]**

|  |  |  |  |
| --- | --- | --- | --- |
| a) 37 , 42 , 50 , 64 | b) 21 , 25 , 42 , 72 | c) 9 , 17 , 34 , 38 | d) 21 , 32 , 53 , 64 |

1. The correct order of the ionic radii of O 2 – , N 3 – , F – , Mg2+ , Na+ and Al3+ is : **[Main Sep. 05, 2020 (II)]**

|  |  |
| --- | --- |
| a) N 3 – < O 2 – < F – < Na+ < Mg2+ < Al3+ | b) Al3+ < Na+ < Mg2+ < O 2 – < F – < N 3 – |
| c) Al3+ < Mg2+ < Na+ < F – < O 2 – < N 3 – | d) N 3 –< F – < O 2 – < Mg2+ < Na+ < Al3+ |

1. The elements with atomic numbers 101 and 104 belong to, respectively : **[Main Sep. 04, 2020 (I)]**

|  |  |
| --- | --- |
| a) Group 11 and Group 4 | b) Actinoids and Group 6 |
| c) Actinoids and Group 4 | d) Group 6 and Actinoids |

1. The process that is NOT endothermic in nature is : **[Main Sep. 04, 2020 (II)]**

|  |  |
| --- | --- |
| a) Ar (g) + e –  Ar – (g) | b) H (g) + e –  H – (g) |
| c) O – (g) + e –  O 2 – (g) | d) Na (g) Na+ (g) + e – |

1. The ionic radii of O 2 – , F – , Na+and Mg2+ are in the order: **[Main Sep. 04, 2020 (I)]**

|  |  |  |  |
| --- | --- | --- | --- |
| a) F – > O 2 – > Na+ > Mg2+ | b) O 2 – > F – > Na+ > Mg2+ | c) Mg2+ > Na+ > F – > O 2 – | d) O 2 – > F – > Mg2+ > Na+ |

1. Among the statements (I – IV), the correct ones are : **[Main Sep. 03, 2020 (II)]**
2. Be has smaller atomic radius compared to Mg.
3. Be has higher ionisation enthalpy than Al.
4. Charge/Radius ratio of Be is greater than that of Al.
5. Both Be and Al form mainly covalent compounds.

|  |  |  |  |
| --- | --- | --- | --- |
| a) (i) , (ii) and (iv) | b) (i) , (iii) and (iv) | c) (ii) , (iii) and (iv) | d) (i) , (ii) and (iii) |

1. The five successive ionisation enthalpies of an element are 800 , 2427 , 3658 , 25024 and 32824 KJ/mol. The number of valence electrons in the element is : **[Main Sep. 03, 2020 (II)]**

|  |  |  |  |
| --- | --- | --- | --- |
| a) 5 | b) 4 | c) 3 | d) 2 |

1. In general, the property (magnitudes only) that shows an opposite trend in comparison to other properties across a period is : **[Main Sep. 02, 2020 (I)]**

|  |  |
| --- | --- |
| a) Ionization enthalpy | b) Electronegativity |
| c) Electron gain enthalpy | d) Atomic Radius |

PERIODIC CLASSIFICATION OF ELEMENTS Page No. 2

1. Three elements X , Y and Z are in the 3rd period of the periodic table. The oxides of X , Y and Z respectively are basic , amphoteric and acidic. The correct order of the atomic numbers of X , Y and Z is :

**[Main Sep. 02, 2020 (II)]**

|  |  |  |  |
| --- | --- | --- | --- |
| a) Z < Y < X | b) X < Y < Z | c) X < Z < Y | d) Y < X < Z |

1. B has a smaller first ionisation enthalpy than Be. Consider the following statements:
2. It is easier to remove 2p electron than 2s electron.
3. 2p electron of B is more shielded from the nucleus by the inner core of electrons than the 2s electrons of Be.
4. 2s electrons has more penetration power than 2p electron
5. Atomic radius of B is more than Be. (At. no. : B = 5 , Be = 4)

The correct statements are : **[Main Jan. 09, 2020 (I)]**

|  |  |  |  |
| --- | --- | --- | --- |
| a) (i) , (ii) and (iv) | b) (ii) , (iii) and (iv) | c) (i) , (ii) and (iii) | d) (i) , (iii) and (iv) |

1. The acidic , basic and amphoteric oxides, respectively are : **[Main Jan. 09, 2020 (I)]**

|  |  |  |  |
| --- | --- | --- | --- |
| a) Na2O , SO3 , Al2O3 | b) Cl2O , CaO , P4O10 | c) N2O3 , Li2O , Al2O3 | d) MgO , Cl2O , Al2O3 |

1. The first and second ionisation enthalpies of a metal are 496 and 4560 KJ/mol, respectively. How many moles of HCl and H2SO4 respectively, will be needed to react completely with 1 mole of the metal hydroxide? **[Main Jan. 09, 2020 (II)]**

|  |  |  |  |
| --- | --- | --- | --- |
| a) 1 & 1 | b) 2 & 0.5 | c) 1 & 2 | d) 1 & 0.5 |

1. The first ionization energy (in KJ/mol) of Na , Mg , Al and Si respectively are : **[Main Jan. 08, 2020 (I)]**

|  |  |  |  |
| --- | --- | --- | --- |
| a) 496 , 737 , 577 , 786 | b) 496 , 577 , 737 , 786 | c) 786 , 737 , 577 , 496 | d) 496 , 577 , 786 , 737 |

1. The increasing order of the atomic radii of the following elements is : **[Main Jan. 08, 2020 (II)]**

(i) C (ii) O (iii) F (iv) Cl (v) Br

|  |  |
| --- | --- |
| a) (ii) < (iii) < (iv) < (i) < (v) | b) (iv) < (iii) < (ii) < (i) < (v) |
| c) (iii) < (ii) < (i) < (iv) < (v) | d) (i) < (ii) < (iii) < (iv) < (v) |

1. The electron gain enthalpy (in KJ/mol) of fluorine , chlorine , bromine and iodine respectively are :

**[Main Jan. 07, 2020 (I)]**

|  |  |
| --- | --- |
| a) – 296 , – 325 , – 333 and – 349 | b) – 349 , – 333 , – 325 and – 296 |
| c) – 333 , – 349 , – 325 and – 296 | d) – 333 , – 325 , – 349 and – 296 |

1. Within each pair of elements F & Cl , S & Se and Li & Na respectively, the elements that release more energy upon an electron gain are : **[Main Jan. 07, 2020 (II)]**

|  |  |  |  |
| --- | --- | --- | --- |
| a) Cl , Se and Na | b) Cl , S and Li | c) F , S and Li | d) F , Se and Na |

1. In comparison to boron, beryllium has : **[Main April 12, 2019 (II)]**
2. Lesser nuclear charge and lesser first ionisation enthalpy.
3. Greater nuclear charge and lesser first ionisation enthalpy.
4. Greater nuclear charge and greater first ionisation enthalpy
5. Lesser nuclear charge and greater first ionisation enthalpy.
6. The correct order of the atomic radii of C , Cs , Al and S is : **[Main Jan. 11, 2019 (I)]**

|  |  |  |  |
| --- | --- | --- | --- |
| a) C < S < Al < Cs | b) S < C < Cs < Al | c) S < C < Al < Cs | d) C < S < Cs < Al |

PERIODIC CLASSIFICATION OF ELEMENTS Page No. 3

1. The correct option with respect to the Pauling electronegativity values of the elements is :

**[Main Jan. 11, 2019 (II)]**

|  |  |  |  |
| --- | --- | --- | --- |
| a) Te > Se | b) Ga < Ge | c) Si < Al | d) P > S |

1. The 71st electron of an element X with an atomic number of 71 enters into the orbital:

**[Main Jan. 10, 2019 (II)]**

|  |  |  |  |
| --- | --- | --- | --- |
| a) 6p | b) 4f | c) 5d | d) 6s |

1. In general, the properties that decrease and increase down a group in the periodic table, respectively are:

**[Main Jan. 09, 2019 (I)]**

|  |  |
| --- | --- |
| a) atomic radius and electronegativity | b) electron gain enthalpy and electronegativity |
| c) electronegativity and atomic radius | d) electronegativity and electron gain enthalpy |

1. The correct order of electron affinity is : **[Main Online April 15, 2018 (II)]**

|  |  |  |  |
| --- | --- | --- | --- |
| a) O > F > Cl | b) F > O > Cl | c) F > Cl > O | d) Cl > F > O |

1. The group having isoelectronic species is : **[Main 2017]**

|  |  |  |  |
| --- | --- | --- | --- |
| a) O 2 – , F – , Na+ , Mg2+ | b) O – , F – , Na , Mg+ | c) O 2 – , F – , Na , Mg2+ | d) O – , F – , Na+ , Mg2+ |

1. Consider the following ionisation enthalpies of two elements ‘A’ and ‘B’. **[Main Online April 8, 2017]**

|  |  |  |  |
| --- | --- | --- | --- |
| Element | Ionisation enthalpy (KJ/mol) | | |
|  | 1st | 2nd | 3rd |
| A | 899 | 1757 | 14847 |
| B | 737 | 1450 | 7731 |

Which of the following statements is correct?

1. Both ‘A’ and ‘B’ belong to group – 1 where ‘B’ comes below ‘A’.
2. Both ‘A’ and ‘B’ belong to group – 1 where ‘A’ comes below ‘B’
3. Both ‘A’ and ‘B’ belong to group – 2 where ‘B’ comes below ‘A’
4. Both ‘A’ and ‘B’ belong to group – 2 where ‘A’ comes below ‘B’
5. Which of the following atoms has the highest first ionization energy? **[Main 2016]**

|  |  |  |  |
| --- | --- | --- | --- |
| a) K | b) Sc | c) Rb | d) Na |

1. The following statements concern elements in the periodic table. Which of the following is true?

**[Main Online April 10, 2016]**

1. For group 15 elements, the stability of + 5 oxidation state increases down the group.
2. Elements of group 16 have lower ionisation enthalpy values compared to those of group 15 in the corresponding periods.
3. The group 13 elements are all metals.
4. All the elements in group 17 are gases.
5. The ionic radii (in Å) N 3 – , O 2 – and F – are respectively : **[Main 2015]**

|  |  |  |  |
| --- | --- | --- | --- |
| a) 1∙71 , 1∙40 , 1∙36 | b) 1∙71 , 1∙36 , 1∙40 | c) 1∙36 , 1∙40 , 1∙71 | d) 1∙36 , 1∙71 , 1∙40 |

1. In the long form of the periodic table, the valence shell electronic configuration of 5s2 5p4 corresponds to the element present in : **[Main Online April 10, 2015]**

|  |  |  |  |
| --- | --- | --- | --- |
| a) Group 16 & Period 6 | b) Group 17 & Period 6 | c) Group 16 & Period 5 | d) Group 17 & Period 5 |

PERIODIC CLASSIFICATION OF ELEMENTS Page No. 4

1. Which of the following series correctly represents relations between the elements from X to Y? [X Y]

**[Main Online April 11, 2014]**

1. 3Li 19K Ionization enthalpy increases
2. 9F 35Br Electron gain enthalpy (negative sign) increases
3. 6C 32Ge Atomic radii increases
4. 18Ar 54Xe Noble character increases
5. Which of the following arrangements represents the increasing order of ionic radii of the given species : O 2 – , S 2 – , N 3 – , P 3 – ? **[Main Online April 12, 2014]**

|  |  |  |  |
| --- | --- | --- | --- |
| a) O 2 – < N 3 – < S 2 – < P 3 – | b) O 2 – < P 3 – < N 3 – < S 2 – | c) N 3 – < O 2 – < P 3 – < S 2 – | d) N 3 – < S 2 – < O 2 – < P 3 – |

1. Which of the following represents the correct order of increasing first ionisation enthalpy for Ca , Ba , S , Se and Ar? **[Main 2013]**

|  |  |  |  |
| --- | --- | --- | --- |
| a) Ca < S < Ba < Se < Ar | b) S < Se < Ca < Ba < Ar | c) Ba < Ca < Se < S < Ar | d) Ca < Ba < S < Se < Ar |

1. The order of increasing sizes of atomic radii among the elements O , S , Se and As is :

**[Main Online April 22, 2013]**

|  |  |  |  |
| --- | --- | --- | --- |
| a) As < S < O < Se | b) Se < S < As < O | c) O < S < As < Se | d) O < S < Se < As |

1. Identify the correct order of acidic strengths of CO2 , CuO , CaO , H2O. **[2002 S]**

|  |  |
| --- | --- |
| a) CaO < CuO < H2O< CO2 | b) H2O< CuO < CaO < CO2 |
| c) CaO < H2O< CuO < CO2 | d) H2O< CO2 < CaO < CuO |

1. The correct order of radii is : **[2000 S]**

|  |  |  |  |
| --- | --- | --- | --- |
| a) N < Be < B | b) F – < O 2 – < N 3 – | c) Ni < Li < K | d) Fe3+ < Fe2+ < Fe4+ |

1. The correct order of acidic strength is : **[2000 S]**

|  |  |  |  |
| --- | --- | --- | --- |
| a) Cl2O7 > SO2 > P4O10 | b) CO2 > N2O5 > SO3 | c) Na2O > MgO > Al2O3 | d) K2O > CaO > MgO |

1. Amongst H2O , H2S , H2Se and H2Te, the one with the highest boiling point is : **[2000 S]**

|  |  |
| --- | --- |
| a) H2O because of hydrogen bonding | b) H2Te because of higher molecular weight |
| c) H2S because of hydrogen bonding | d) H2Se because of lower molecular weight |

1. Which has most stable +2 oxidation state : **[1995 S]**

|  |  |  |  |
| --- | --- | --- | --- |
| a) Sn | b) Pb | c) Fe | d) Ag |

1. Amongst the following elements (whose electronic configurations are given below) the one having the highest ionization energy is : **[1990 – 1 Mark]**

|  |  |  |  |
| --- | --- | --- | --- |
| a) [Ne] 3s2 3p1 | b) [Ne] 3s2 3p3 | c) [Ne] 3s2 3p2 | d) [Ag] 3d10 4s2 4p3 |

1. Which one of the following is the strongest base? **[1989 – 1 Mark]**

|  |  |  |  |
| --- | --- | --- | --- |
| a) AsH3 | b) NH3 | c) PH3 | d) SbH3 |

1. Which one of the following is the smallest in size? **[1989 – 1 Mark]**

|  |  |  |  |
| --- | --- | --- | --- |
| a) N 3 – | b) O 2 – | c) F – | d) Na+ |

1. The first ionization potential of Na , Mg , Al and Si are in the order: **[1988 – 1 Mark]**

|  |  |  |  |
| --- | --- | --- | --- |
| a) Na < Mg > Al < Si | b) Na > Mg > Al > Si | c) Na < Mg < Al < Si | d) Na > Mg > Al < Si |

1. The electronegativity of the following elements increases in the order: **[1987 – 1 Mark]**

|  |  |  |  |
| --- | --- | --- | --- |
| a) C , N , Si , P | b) N , Si , C , P | c) Si , P , C , N | d) P , Si , N , C |

PERIODIC CLASSIFICATION OF ELEMENTS Page No. 5

1. The first ionisation potential in electron volts of nitrogen and oxygen atoms are respectively given by :

**[1987 – 1 Mark]**

|  |  |  |  |
| --- | --- | --- | --- |
| a) 14.6 , 13.6 | b) 13.6 , 14.6 | c) 13.6 , 13.6 | d) 14.6 , 14.6 |

1. Atomic radii of fluorine and neon in Angstorm units are respectively given by : **[1987 – 1 Mark]**

|  |  |  |  |
| --- | --- | --- | --- |
| a) 0.72 , 1.60 | b) 1.60 , 1.60 | c) 0.72 , 0.72 | d) none of these |

1. The element with the highest first ionization potential is : **[1982 – 1 Mark]**

|  |  |  |  |
| --- | --- | --- | --- |
| a) Boron | b) carbon | c) Nitrogen | d) Oxygen |

1. The correct order of second ionisation potential of carbon , nitrogen , oxygen and fluorine is :

**[1981 – 1 Mark]**

|  |  |  |  |
| --- | --- | --- | --- |
| a) C > N > O > F | b) O > N > F > C | c) O > F > N > C | d) F > O > N > C |

**Answers**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| 1. b | 1. a | 1. b | 1. b | 1. d | 1. d | 1. d | 1. c |
| 1. b | 1. b | 1. c | 1. d | 1. b | 1. b | 1. c | 1. c |
| 1. b | 1. b | 1. a | 1. c | 1. d | 1. b | 1. c | 1. c |
| 1. d | 1. a | 1. c | 1. c | 1. b | 1. d | 1. a | 1. b |
| 1. c | 1. c | 1. d | 1. a | 1. c | 1. b | 1. b | 1. a |
| 1. c | 1. c | 1. a | 1. c | 1. d | 1. a | 1. b | 1. a |
| 1. a | 1. b | 1. b | 1. b | 1. d | 1. a | 1. c | 1. a |
| 1. a | 1. c | 1. c |  |  |  |  |  |

PERIODIC CLASSIFICATION OF ELEMENTS Page No. 6

**INTEGER VALUE TYPE QUESTIONS**

1. The 1st , 2nd and 3rd ionisation enthalpies I1 , I2 and I3 , of four atoms with atomic numbers n , n+1 , n+2 and n+3, where n < 10, are tabulated below. What is the value of n? **[Adv. 2020]**

|  |  |  |  |
| --- | --- | --- | --- |
| Atomic Number | Ionization enthalpy (KJ/mol) | | |
| I1 | I2 | I3 |
| n | 1681 | 3374 | 6050 |
| n + 1 | 2081 | 3952 | 6122 |
| n + 2 | 496 | 4562 | 6910 |
| n + 3 | 738 | 1451 | 7733 |

1. Among the following, the number of elements showing only one non-zero oxidation state is : O , Cl , F , N , P , Sn , Tl , Na , Ti. **[2010]**

**FILL IN THE BLANKS**

1. The atomic number of Unnilunium is \_\_\_\_\_\_\_\_\_\_\_\_. **[Main Sep. 06, 2020 (II)]**
2. On Mulliken scale, the average of ionization potential and electron affinity is known as \_\_\_\_\_\_\_\_\_\_.

**[1985 – 1 Mark]**

1. The energy released when an electron is added to a neutral gaseous atom is called \_\_\_\_\_\_\_\_\_\_ of the atom. **[1982 – 1 Mark]**

**TRUE / FALSE**

1. The basic nature of the hydroxides of group 13 (Gr. III B) decreases progressively down the group.

**[1993 – 1 Mark]**

1. The decreasing order of electron affinity of F , Cl , Br is F > Cl > Br. **[1993 – 1 Mark]**

**MCQs with one or more than One Correct Answer**

1. The option(s) with only amphoteric oxides is(are) : **[Adv. 2017]**

|  |  |
| --- | --- |
| a) Cr2O3 , BeO , SnO , SnO2 | b) Cr2O3 , CrO , SnO , PbO |
| c) NO , B2O3 , PbO , SnO2 | d) ZnO , Al2O3 , PbO , PbO2 |

1. Ionic radii of : **[1999 – 3 Mark]**

|  |  |  |  |
| --- | --- | --- | --- |
| a) Ti4+ < Mn7+ | b) 35Cl – < 37Cl – | c) K+ > Cl – | d) P3+ > P5+ |

1. Sodium sulphate is soluble in water whereas Barium sulphate is sparingly soluble because :

**[1989 – 1 Mark]**

1. The hydration energy of sodium sulphate is more than its lattice energy
2. The Lattice energy of barium sulphate is more than its hydration energy
3. The lattice energy has no role to play in solubility
4. The hydration energy of sodium sulphate is less than its lattice energy

PERIODIC CLASSIFICATION OF ELEMENTS Page No. 7

**Assertion-Reason Type Questions**

**DIRECTIONS :** In each of the following questions, a statement of Assertion (A) is given followed by a corresponding statement of Reason (R) just below it. Of the statements, mark the correct answer as:

1. If both assertion and reason are true, but reason is the true explanation of the assertion.
2. If both assertion and reason are true, but reason is not the true explanation of the assertion.
3. If assertion is true, but reason is false.
4. If assertion is false, but reason is true.
5. **Assertion:** The first ionization energy of Be is greater than that of B. **[2000 S]**

**Reason:** 2p orbital is lower in energy than 2s.

**Answers**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| 1. 9 | 1. 2 | 1. 101 | 1. Electronegativity | | 1. Electron Affinity | |
| 1. False | 1. False | 1. a , d | 1. d | 1. a , b | 1. c |  |

**Subjective Problems**

1. Arrange the following in :
2. Increasing order of their radii : Li+ , Mg2+ , K+ , Al3+ . **[1997 – 1 Mark]**
3. Increasing order of ionic size : N 3 – , Na+ , F – , O 2 – , Mg2+. **[1991 – 1 Mark]**
4. Increasing size : Cl – , S 2 – , Ca2+, Ar. **[1986 – 1 Mark]**
5. Increasing first ionization potential : Mg , Al , Si , Na. **[1985 – 1 Mark]**
6. Increasing acidic property : ZnO , Na2O2 , P2O5 , MgO. **[1985 – 1 Mark]**
7. Decreasing ionic size : Mg2+ , O 2 – , Na+ , F –  **[1985 – 1 Mark]**
8. The first ionization energy of carbon atom is greater than that of boron atom whereas, the reverse is true for the second ionisation energy. **[1989 – 2 Mark]**

PERIODIC CLASSIFICATION OF ELEMENTS Page No. 8