Classification of Elements and Periodicity in Properties

Q.No.1:
Which of the following represents the correct order of increasing first ionization enthalpy for Ca, Ba, S, Se and Ar ?

JEE 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

Q.No.2: When the first electron gain enthalpy ($\Delta_{eg}H$) of oxygen is –141 kJ/mol, its second electron gain enthalpy is: **JEE 2019**

A. a more negative value than the first
B. almost the same as that of the first
C. negative, but less negative than the first
D. a positive value

Q.No.3: The correct option with respect to the Pauling electronegativity values of the elements is : **JEE 2019**

A. Te > Se
B. Ga < Ge
C. Si < Al
D. P > S

Q.No.4: The correct order of the atomic radii of C, Cs, Al, and S is: **JEE 2019**

A. C < S < Al < Cs
B. S < C < Cs < Al
C. S < C < Al < Cs

D. C < S < Cs < Al

Q.No.5: Consider the elements Mg, AI, S, P and Si, the correct increasing order of their first ionization enthalpy is : **JEE 2021**

A. Mg < Al < Si < P < S

B. Mg < Al < Si < S < P

C. Al < Mg < S < Si < P

D. Al < Mg < Si < S < P

Q.No.6: Match List-I with List-II.

List-I Electronic configuration of elements	List-II $\Delta_i H$ in kJ mol–1
(a) $1s^2\ 2s^2$	(i) 801
(b) $1s^2\ 2s^2\ 2p^4$	(ii) 899
(c) $1s^2\ 2s^2\ 2p^3$	(iii) 1314
(d) $1s^2\ 2s^2\ 2p^1$	(iv) 1402

Choose the most appropriate answer from the options given below : **JEE 2021**

A. (a) → (i), (b) → (iii), (c) → (iv), (d) → (ii)

B. (a) → (i), (b) → (iv), (c) → (iii), (d) → (ii)

C. (a) → (iv), (b) → (i), (c) → (ii), (d) → (iii)

D. (a) → (iv), (b) → (i), (c) → (ii), (d) → (iii)

Q.No.7: The characteristics of elements X, Y and Z with atomic numbers, respectively, 33, 53 and 83 are **JEE 2021**

A. X and Y are metalloids and Z is a metal.

B. X is a metalloid, Y is a non-metal and Z is a metal.

C. X and Z are non-metals and Y is a metalloid.

D. X, Y and Z are metals.

Q.No.8: Identify the elements X and Y using the ionisation energy values given below :

	Ionization energy (kJ/mol)	
	1st	**2nd**
X	495	4563
Y	731	1450

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A. X = Na ; Y = Mg
B. X = Mg ; Y = F
C. X = F ; Y = Mg
D. X = Mg ; Y = Na

Q.No.9: The absolute value of the electron gain enthalpy of halogens satisfies:
JEE 2021

A. Cl > Br > F > I
B. I > Br > Cl > F
C. F > Cl > Br > I
D. Cl > F > Br > I

Q.No.10: The first ionization 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
JEE 2021

A. chlorine, lithium and sodium
B. argon, lithium and sodium
C. argon, chlorine and sodium
D. neon, sodium and chlorine