Exercise 3.23 – Ionisation energy

Q323-01 The first ionization energy for a mole of magnesium atoms is the energy required for which of the following processes?

A. $Mg(s) \longrightarrow Mg(g)$
B. $Mg(g) \longrightarrow Mg^{+}(g) + 2e^{-}$
C. $Mg^{+}(g) \longrightarrow Mg^{2+}(g) + e^{-}$
D. $Mg(g) \longrightarrow Mg^{+}(g) + e^{-}$

Q323-02 Which has the greatest ionization energy?

A. He
B. Ne
C. Ar
D. Cl^{-}

Q323-03 Which element has the highest first ionization energy?

A. sodium
B. aluminium
C. calcium
D. phosphorus

Q323-04 When combining with non-metallic atoms, metallic atoms generally will do which of the following?

A. lose electrons and form negative ions
B. lose electrons and form positive ions
C. gain electrons and from negative ions
D. gain electrons and form positive ions

Q323-05 An atom of which of the following elements has the greatest ability to attract electrons?

A. silicon
B. sulphur
C. sodium
D. chlorine

Q323-06 In group 1, values of the first ionization energies follow the order:

A. Li > Na > K
B. Na > K > Rb > Cs
C. K > Na > Li
D. Rb > K > Na

Q323-07 Which factors lead to an element having a low value for first ionisation energy?

I - Large atomic radius
II - High number of occupied energy levels
III - High nuclear charge

A. I and II only
B. I and III only
C. II and III only
D. I, II and III

Exercise 3.23 – Ionisation energy

Q323-08 The reason for a general increase in ionisation energy of the elements across period 3 of the periodic table is the increasing number of which of the following?

A. Outer electrons
B. Neutrons
C. Protons
D. Electron sup-levels occupied

Q323-09 When the elements below are arranged in order of increasing ionisation energy, what is the correct order?

A. Li, Na, K
B. Na, K, Li
C. Na, Li, K
D. K, Na, Li

Q323-10 Which of the following elements has the highest first ionization energy?

A. F
B. B
C. C
D. Xe
