


Date Planned : __ / __ / __	Daily Tutorial Sheet - 3	Expected Duration : 90 Min
Actual Date of Attempt : __ / __ / __	Level - 1	Exact Duration : _____

31. Electron affinity of an atom is defined as
- (A) The energy required to remove an electron from an isolated atom in its gaseous state
 (B) The energy released when an electron is added to an isolated atom in its gaseous state
 (C) The energy required to add an electron to an isolated atom in its gaseous state
 (D) The ability of an atom to attract an electron
32. Consider the first ionization energies of the elements whose electronic configurations correspond to the following. ▶
- I. [He] $2s^2 2p^3$ II. [He] $2s^2 2p^4$ III. [Ne] $3s^2 3p^1$ IV. [Ar] $3d^{10} 4p^1$
- Which of the above have almost the same first ionization energies?
- (A) I and II (B) I and III (C) III and IV (D) II and IV
33. Which of the elements whose atomic numbers are given below, cannot be accommodated in the present set up of the long form of the periodic table?
- (A) 107 (B) 118 (C) 126 (D) 102
34. Which of the following elements will not show the inert-pair effect ?
- (A) Sn (B) Fe (C) Pb (D) In
35. Which of the following arrangements shows the correct order of increasing stability? ▶
- (A) $C^{2+} < Ge^{2+} < Sn^{2+} < Pb^{2+}$ (B) $Ge^{2+} < C^{2+} < Sn^{2+} < Pb^{2+}$
 (C) $Sn^{2+} < C^{2+} < Ge^{2+} < Pb^{2+}$ (D) $Pb^{2+} < Ge^{2+} < C^{2+} < Sn^{2+}$
36. The element having the electronic configuration $1s^2 2s^2 2p^6 3s^2 3p^2$ is :
- (A) a metal (B) a nonmetal (C) a noble gas (D) a metalloid
37. In the periodic table, with the increase in the atomic number, the metallic character of the elements :
- (A) decreases along a period and increases down a group
 (B) increases along a period and decreases down a group
 (C) increases both along a period and down a group
 (D) decreases both along a period and down a group
38. Which of the following molecules is isoelectronic with N_2O ?
- (A) NH_3 (B) H_2O (C) NO_2 (D) CO_2
39. In which of the following series of elements are the atomic radii of all the elements nearly the same ? ▶
- (A) Na, K, Rb (B) Li, Be, B (C) F, Cl, Br (D) Fe, Co, Ni
40. Which of the following contains an 18-electron structure ? ▶
- (A) Cu^+ (B) Zn^{2+} (C) Hg^{2+} (D) All of these
41. Which of the following transformations is considered in defining ionization energy ?
- (A) $A(g) + aq \longrightarrow A^+(aq) + e^-$ (B) $A(g) + e^- \longrightarrow A^-(g)$
 (C) $A(g) \longrightarrow A^+(g) + e^-$ (D) $A(s) \longrightarrow A^+(g) + e^-$

42. In which of the following properties is periodicity not exhibited by the elements ?
 (A) Atomic radius (B) Atomic weight
 (C) Ionization energy (D) Electronegativity
43. The first ionization energy of Ar is less than that of Ne. An explanation of this fact is that :
 (A) The effective nuclear charge experienced by a valence electron in Ar is much larger than that in Ne
 (B) The effective nuclear charge experienced by a valence electron in Ar is much smaller than that in Ne
 (C) The atomic radius of Ar is larger than that of Ne
 (D) the atomic radius of Ar is smaller than that of Ne
44. According to the modern periodic table of elements, the variation in properties of elements is related to their: 
 (A) neutron-proton number ratio (B) atomic masses
 (C) nuclear masses (D) atomic numbers
45. Which one of the following groupings represents a collection of isoelectronic species (Atomic No.: Cs = 55, Br = 35) ?
 (A) Ca^{2+} , Cs^+ , Br (B) Na^+ , Ca^{2+} , Mg^{2+}
 (C) N^{3-} , F^- , Na^+ (D) Be, Al^{3+} , Cl^-