

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
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- (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	of the el	ements	whose	electronic	configurations	correspond	to the
	following.								(\mathbf{b})

I. [He] $2s^22p^3$

II.

 $[He]2s^22p^4$

III. $[Nel3s^23p^1]$

IV. [Ar]3d¹⁰4p¹

Which of the above have almost the same first ionization energies?

Fe

(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)

(C)

126

(D) 102

34. Which of the following elements will not show the inert-pair effect?

(A) Sn

(B)

(C) P

(D) In

35. Which of the following arrangements shows the correct order of increasing stability?

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(A) $C^{2+} < Ge^{2+} < Sn^{2+} < Pb^{2+}$

(B) $Ge^{2+} < C^{2+} < Sn^{2+} < Pb^{2+}$

(C) $\operatorname{Sn}^{2+} < \operatorname{C}^{2+} < \operatorname{Ge}^{2+} < \operatorname{Pb}^{2+}$

 $\textbf{(D)} \qquad \quad Pb^{2+} < Ge^{2+} < C^{2+} < Sn^{2+}$

36. The element having the electronic configuration $1s^22s^22p^63s^23p^2$ 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) NH₃

(B) H₂O

(C) NO₂

(D) CO₂

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

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40. Which of the following contains an 18-electron structure?

 (\mathbf{F})

(A) Cu⁺

(B) Zn^{2+}

(C) Hg^{2+}

(D) All of these

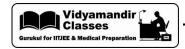
41. Which of the following transformations is considered in defining ionization energy?

(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^{-}