Atomic and Ionic radii

49. The decreasing order of size of isoelectronic series K^+, Ca^{2+}, Cl^- and S^{2-} is
(a) $K^+ > Ca^{2+} > S^{2-} > Cl^-$
(b) $K^+ > Ca^{2+} > Cl^- > S^{2-}$
(c) $Ca^{2+} > K^+ > Cl^- > S^{2-}$
(d) $S^{2-} > Cl^- > K^+ > Ca^{2+}$

50. Which of the following sets of elements have the strongest tendency to form anions
(a) *N, O, F* (b) *P, S, Cl*
(c) *As, Se, Br* (d) *Sb, Te, I*

51. Radius of the isoelectronic species
(a) Increases with the increase of nuclear charge
(b) Decreases with the increase of nuclear charge
(c) Is the same for all
(d) First increases and then decreases

52. In which of the following pairs the difference between the covalent radii of the two metals is maximum
(a) *K, Ca* (b) *Mn , Fe*
(c) *Co , Ni* (d) *Cr , Mn*

53. An atom of an element has electronic configuration 2, 8, 1. Which of the following statement is correct
(a) The element's valency is 7
(b) The element exists as a diatomic molecule
(c) The element is of non-metallic nature
(d) The element forms a basic oxide

54. Which of the following ions has the smallest radius
(a) Be^{2+} (b) Li^+
(c) O^{2-} (d) F^-

55. Point out the *wrong* statement :
In a given period of the periodic table the *s* - block element has, in general, a lower value of
(a) Ionisation energy
(b) Electronegativity
(c) Atomic radius
(d) Electron affinity

56. Arrange the following in increasing order of their atomic radius :
(a) *Mg < K < Na < Rb*
(b) *Mg < Na < K < Rb*
(c) *Mg < Na < Rb < K*
(d) *Na < K < Rb < Mg*

57. In the isoelectronic species the ionic radii (Å) of N^{3-} , O^{2-} and F^- are respectively given by
(a) 1.36, 1.40, 1.71
(b) 1.36, 1.71, 1.40
(c) 1.71, 1.40, 1.36

(d) 1.71, 1.36, 1.40

58. Al^{3+} has a lower ionic radius than Mg^{2+} because
(a) Mg atom has less number of neutrons than Al
(b) Al^{3+} has a higher nuclear charge than Mg^{2+}
(c) Their electronegativities are different
(d) Al has a lower ionisation potential than Mg atom

59. When a neutral atom is converted into cation, there is
(a) Decrease in the atomic number
(b) An increase in the atomic number
(c) A decrease in size
(d) An increase in size

60. A trend common to both groups I and VII elements in the periodic table as atomic number increases is
(a) Oxidising power increases
(b) Atomic radius increases
(c) Maximum valency increases
(d) Reactivity with water increases

61. Increasing order of atomic radii is
(a) $Mg^{2+} < Na^{+} < Ne < F^{-} < O^{2-}$
(b) $Na^{+} < Mg^{++} < Ne < F^{-} < O^{2-}$
(c) $O^{2-} < F^{-} < Ne < Na^{+} < Mg^{2+}$
(d) $Ne < O^{2-} < F^{-} < Na^{+} < Mg^{2+}$

62. Chloride ion and potassium ion are isoelectronic. Then
(a) Potassium ion is relatively bigger
(b) Depends on the other cation and anion
(c) Their size are same
(d) Chloride ion is bigger than potassium ion

63. Which of the following has the largest ionic radius
(a) Na^{+} (b) Ni^{+}
(c) Cs^{+} (d) Mg^{+2}

64. The ionic radii of Li^{+}, Na^{+}, K^{+} are in which of the following order
(a) $K^{+} > Na^{+} > Li^{+}$
(b) $K^{+} > Na^{+} < Li^{+}$
(c) $K^{+} < Na^{+} < Li^{+}$
(d) $Li^{+} > Na^{+} < K^{+}$

65. Which of the following has smallest size
(a) Mg^{2+} (b) Na^{+}
(c) Al^{3+} (d) Si^{4+}

66. Which one of the following is expected to have largest size
(a) F^{-} (b) O^{-2}
(c) Al^{+3} (d) N^{-3}

67. The trivalent ion having largest size in lanthanide series is
(a) Ti (b) Zr

(c) *Hf* (d) *La*

68. Which of the following alkali metal ions has lowest ionic mobility in aqueous solutions

(a) Rb^+ (b) Cs^+

(c) Li^+ (d) Na^+

69. Ionic radii are

(a) Directly proportional to effective nuclear charge

(b) Directly proportional to square of effective nuclear charge

(c) Inversely proportional to effective nuclear charge

(d) Inversely proportional to square of effective nuclear charge.

70. The correct sequence of increasing covalent character is represented by

(a) $LiCl < NaCl < BeCl_2$

(b) $BeCl_2 < NaCl < LiCl$

(c) $NaCl < LiCl < BeCl$

(d) $BeCl_2 < LiCl < NaCl$

71. Correct energy value order is

(a) $ns\ np\ nd(n-1)f$

(b) $ns\ np(n-1)d\ (n-2)f$

(c) $ns\ np(n-1)d\ (n-1)f$

(d) $ns(n-1)d\ n(n-1)f$

72. The ionic conductance of following cation in a given concentration are in the order

(a) $Li^+ < Na^+ > K^+ < Rb^+$

(b) $Li^+ > Na^+ > K^+ > Rb^+$

(c) $Li^+ < Na^+ > K^+ > Rb^+$

(d) $Li^+ = Na^+ < K^+ < Rb^+$

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