Quantum number, Electronic configuration and Shape of orbitals

61. For $n = 3$ energy level, the number of possible orbitals (all kinds) are
(a) 1 (b) 3
(c) 4 (d) 9

62. Which of the following ions is not having the configuration of neon
(a) F^- (b) Mg^{+2}
(c) Na^+ (d) Cl^-

63. Elements upto atomic number 103 have been synthesized and studied. If a newly discovered element is found to have an atomic number 106, its electronic configuration will be
(a) $[Rn]5f^{14}, 6d^4, 7s^2$
(b) $[Rn]5f^{14}, 6d^1, 7s^2 7p^3$
(c) $[Rn]5f^{14}, 6d^6, 7s^0$
(d) $[Rn]5f^{14}, 6d^5, 7s^1$

64. Ions which have the same electronic configuration are those of
(a) Lithium and sodium
(b) Sodium and potassium
(c) Potassium and calcium
(d) Oxygen and chlorine

65. When the azimuthal quantum number has a value of $l = 0$, the shape of the orbital is
(a) Rectangular
(b) Spherical
(c) Dumbbell
(d) Unsymmetrical

66. The magnetic quantum number for valency electrons of sodium is
(a) 3 (b) 2
(c) 1 (d) 0

67. The electronic configuration of an element with atomic number 7 *i.e.* nitrogen atom is
(a) $1s^2, 2s^1, 2p_x^3$
(b) $1s^2, 2s^2 2p_x^2 2p_y^1$
(c) $1s^2, 2s^2 2p_x^1 2p_y^1 2p_z^1$
(d) $1s^2, 2s^2 2p_x^1 2p_y^2$

68. In a multi-electron atom, which of the following orbitals described by the three quantum members will have the same energy in the absence of magnetic and electric fields
(1) $n = 1, l = 0, m = 0$
(2) $n = 2, l = 0, m = 0$
(3) $n = 2, l = 1, m = 1$
(4) $n = 3, l = 2, m = 0$
(5) $n = 3, l = 2, m = 0$
(a) (1) and (2) (b) (2) and (3)
(c) (3) and (4) (d) (4) and (5)

69. Which of the following represents the electronic configuration of an element with atomic number 17
(a) $1s^2, 2s^2 2p^6, 3s^1 3p^6$

(b) $1s^2, 2s^2 2p^6, 3s^2 3p^4, 4s^1$
(c) $1s^2, 2s^2 2p^6, 3s^2 3p^5$
(d) $1s^2, 2s^2 2p^6, 3s^1 3p^4, 4s^2$

70. The shape of s -orbital is
(a) Pyramidal
(b) Spherical
(c) Tetrahedral
(d) Dumb-bell shaped

71. When $3d$ orbital is complete, the new electron will enter the
(a) $4p$-orbital (b) $4f$-orbital
(c) $4s$-orbital (d) $4d$-orbital

72. In a potassium atom, electronic energy levels are in the following order
(a) $4s > 3d$ (b) $4s > 4p$
(c) $4s < 3d$ (d) $4s < 3p$

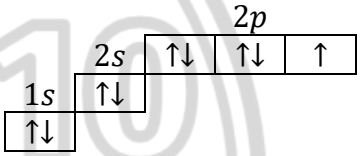
73. Fe (atomic number = 26) atom has the electronic arrangement
(a) 2, 8, 8, 8 (b) 2, 8, 16
(c) 2, 8,14, 2 (d) 2, 8, 12, 4

74. Cu^{2+} will have the following electronic configuration
(a) $1s^2, 2s^2 2p^6, 3s^2 3p^6 3d^{10}$
(b) $1s^2, 2s^2 2p^6, 3s^2 3p^6 3d^9, 4s^1$
(c) $1s^2, 2s^2 2p^6, 3s^2 3p^6 3d^9$
(d) $1s^2, 2s^2 2p^6, 3s^2 3p^6 3d^{10}, 4s^1$

75. Which one is the electronic configuration of Fe^{+2}
(a) $1s^2, 2s^2 2p^6, 3s^2 3p^6 3d^6$
(b) $1s^2, 2s^2 2p^6, 3s^2 3p^6 3d^4, 4s^2$
(c) $1s^2, 2s^2 2p^6, 3s^2 3p^6 3d^5, 4s^1$
(d) None of these

76. How many electrons can be fit into the orbitals that comprise the 3^{rd} quantum shell $n = 3$
(a) 2 (b) 8
(c) 18 (d) 32

77. Which element is represented by the following electronic configuration



(a) Nitrogen (b) Oxygen
(c) Fluorine (d) Neon

78. If the value of azimuthal quantum number is 3, the possible values of magnetic quantum number would be
(a) 0, 1, 2, 3
(b) 0, – 1, – 2, – 3
(c) 0, $\pm$1, $\pm$2, $\pm$3
(d) $\pm$1, $\pm$2, $\pm$3

79. Krypton $(_{36}Kr)$ has the electronic configuration $(_{18}Ar)$ $4s^2, 3d^{10}, 4p^6$. The 37^{th} electron will go into which one of the following sub-levels
(a) $4f$ (b) $4d$
(c) $3p$ (d) $5s$

80. If an electron has spin quantum number of $+\frac{1}{2}$ and a magnetic quantum number of -1, it cannot be presented in an
(a) d -orbital (b) f -orbital
(c) p -orbital (d) s -orbital

81. The azimuthal quantum number is related to
(a) Size (b) Shape
(c) Orientation (d) Spin

82. The total number of electrons that can be accommodated in all the orbitals having principal quantum number 2 and azimuthal quantum number 1 is
(a) 2 (b) 4
(c) 6 (d) 8

83. Electronic configuration of C is
(a) $1s^2, 2s^2 2p^2$ (b) $1s^2, 2s^2 2p^3$
(c) $1s^2, 2s^2$ (d) $1s^2, 2s^2 2p^6$

84. There is no difference between a $2p$ and a $3p$orbital regarding
(a) Shape (b) Size
(c) Energy (d) Value of n

85. The electronic configuration of chromium is
(a) $[Ne]3s^2 3p^6 3d^4, 4s^2$
(b) $[Ne]3s^2 3p^6 3d^5, 4s^1$
(c) $[Ne]3s^2 3p^6, 4s^2 4p^4$
(d) $[Ne]3s^2 3p^6 3d^1, 4s^2 4p^3$

86. The shape of p -orbital is
(a) Elliptical
(b) Spherical
(c) Dumb-bell
(d) Complex geometrical

87. The electronic configuration (outermost) of Mn^{+2} ion (atomic number of $Mn = 25$) in its ground state is
(a) $3d^5, 4s^0$ (b) $3d^4, 4s^1$
(c) $3d^3, 4s^2$ (d) $3d^2, 4s^2 4p^2$

88. The principal quantum number represents
(a) Shape of an orbital
(b) Distance of electron from nucleus
(c) Number of electrons in an orbit
(d) Number of orbitals in an orbit

89. When the azimuthal quantum number has a value of $l = 1$, the shape of the orbital is
(a) Unsymmetrical
(b) Spherically symmetrical
(c) Dumb-bell
(d) Complicated

90. How many electrons can be accommodated in a sub-shell for which $n = 3, l = 1$
(a) 8 (b) 6

(c) 18 (d) 32