Quantum number, Electronic configuration and Shape of orbitals

151. Correct statement is

(a) $K = 4s^1, Cr = 3d^4 4s^2, Cu = 3d^{10} 4s^2$

(b) $K = 4s^2, Cr = 3d^4 4s^2, Cu = 3d^{10} 4s^2$

(c) $K = 4s^2, Cr = 3d^5 4s^1, Cu = 3d^{10} 4s^2$

(d) $K = 4s^1, Cr = 3d^5 4s^1, Cu = 3d^{10} 4s^1$

152. Number of orbitats in *h* sub-shell is

(a) 11 (b) 15
(c) 17 (d) 19

153. Electronic configuration $1s^2, 2s^2 2p^6, 3s^2 3p^6 3d^5, 4s^1$ represents

(a) Ground state
(b) Excited state
(c) Anionic state
(d) All of these

154. Which of the following sets is possible for quantum numbers

(a) $n = 4, l = 3, m = -2, s = 0$

(b) $n = 4, l = 4, m = +2, s = -\frac{1}{2}$

(c) $n = 4, l = 4, m = -2, s = +\frac{1}{2}$

(d) $n = 4, l = 3, m = -2, s = +\frac{1}{2}$

155. For principle quantum number $n = 4$ the total number of orbitals having $l = 3$

(a) 3 (b) 7
(c) 5 (d) 9

156. The number of $2p$ electrons having spin quantum number $s = -1/2$ are

(a) 6 (b) 0
(c) 2 (d) 3

157. Which of the following sets of quantum numbers is correct for an electron in $4f$ orbital

(a) $n = 4, l = 3, m = +1, s = +\frac{1}{2}$

(b) $n = 4, l = 4, m = -4, s = -\frac{1}{2}$

(c) $n = 4, l = 3, m = +4, s = +\frac{1}{2}$

(d) $n = 3, l = 2, m = -2, s = +\frac{1}{2}$

158. Consider the ground state of $(Z = 24)$. The numbers of electrons with the azimuthal quantum numbers, $l = 1$ and 2 are, respectively

(a) 16 and 4 (b) 12 and 5
(c) 12 and 4 (d) 16 and 5

159. The four quantum numbers of the valence electron of potassium are

(a) 4, 1, 0 and $\frac{1}{2}$

(b) 4, 0, 1 and $\frac{1}{2}$

(c) 4, 0, 0 and $+\frac{1}{2}$

(d) 4, 1, 1 and $\frac{1}{2}$

160. Which of the following electronic configuration is not possible according to Hund's rule

(a) $1s^2 2s^2$ (b) $1s^2 2s^1$
(c) $1s^2 2s^2 2p_x^1 2p_y^1 2p_x^1$ (d) $1s^2 2s^2 2p_x^2$
(e) $1s^2 2s^2 2p_x^2 2p_y^1 2p_z^1$

161. The ground state term symbol for an electronic state is governed by

(a) Heisenberg's principle
(b) Hund's rule
(c) Aufbau principle
(d) Pauli exclusion principle

162. The electronic configuration of element with atomic number 24 is

(a) $1s^2, 2s^2 2p^6, 3s^2 3p^6 3d^4, 4s^2$
(b) $1s^2, 2s^2 2p^6, 3s^2 3p^6 3d^{10}$
(c) $1s^2, 2s^2 2p^6, 3s^2 3p^6 3d^6$
(d) $1s^2, 2s^2 2p^6, 3s^2 3p^6 3d^5 4s^1$

163. The maximum number of electrons in p -orbital with $n = 5, m = 1$ is

(a) 6 (b) 2
(c) 14 (d) 10

164. Number of two electron can have the same values of …… quantum numbers

(a) One (b) Two
(c) Three (d) Four

165. The number of orbitals present in the shell with $n = 4$ is

(a) 16 (b) 8
(c) 18 (d) 32

166. Which of the following electronic configuration is not possible

(a) $1s^2 2s^2$
(b) $1s^2, 2s^2 2p^6$
(c) $[Ar]3d^{10}, 4s^2 4p^2$
(d) $1s^2, 2s^2 2p^2, 3s^1$

167. p_x orbital can accommodate

(a) 4 electrons
(b) 6 electrons
(c) 2 electrons with parallel spins
(d) 2 electrons with opposite spins

168. The maximum number of electrons that can be accommodated in $'f'$ sub shell is

(a) 2 (b) 8
(c) 32 (d) 14

169. The number of electrons which can be accommodated in an orbital is

(a) One (b) Two
(c) Three (d) Four

170. The number of electrons in the atom which has 20 protons in the nucleus

(a) 20 (b) 10
(c) 30 (d) 40

171. The maximum number of electrons accommodated in $5f$ orbitals are

(a) 5 (b) 10
(c) 14 (d) 18

172. The maximum number of electrons in an atom with $l = 2$ and $n = 3$ is

(a) 2 (b) 6
(c) 12 (d) 10

173. The configuration $1s^2 2s^2 2p^5 3s^1$ shows

(a) Ground state of fluorine atom
(b) Excited state of fluorine atom
(c) Excited state of neon atom
(d) Excited state of ion O_2^-

174. For sodium atom the number of electrons with $m = 0$ will be

(a) 2 (b) 7
(c) 9 (d) 8

175. The number of electrons that can be accommodated in dz^2 orbital is

(a) 10 (b) 1
(c) 4 (d) 2

176. Number of unpaired electrons in $1s^2 2s^2 2p^3$ is

(a) 2 (b) 0
(c) 3 (d) 1

177. Total number of unpaired electrons in an atom of atomic number 29 is

(a) 1 (b) 3
(c) 4 (d) 2

178. The number of unpaired electrons in $1s^2, 2s^2 2p^4$ is]

(a) 4 (b) 2
(c) 0 (d) 1

179. The maximum number of electrons that can be accommodated in a $3d$ subshell is

(a) 2 (b) 10
(c) 6 (d) 14

180. The maximum number of electrons which each sub-shell can occupy is

(a) $2n^2$ (b) $2n$
(c) $2(2l + 1)$ (d) $(2l + 1)$