Quantum number, Electronic configuration and Shape of orbitals

121. An electron having the quantum numbers $n = 4, l = 3, m = 0$, $s = -\frac{1}{2}$ would be in the orbital

(a) $3s$ (b) $3p$

(c) $4d$ (d) $4f$

122. Which of the following sets of quantum numbers is not allowed

(a) $n = 1, l = 0, m = 0, s = +\frac{1}{2}$

(b) $n = 1, l = 1, m = 0, s = -\frac{1}{2}$

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

(d) $n = 2, l = 1, m = 0, s = -\frac{1}{2}$

123. For which of the following sets of four quantum numbers, an electron will have the highest energy

	n	l	m	s
(a)	3	2	1	+1/2
(b)	4	2	1	+1/2
(c)	4	1	0	–1/2
(d)	5	0	0	–1/2

124. The electronic configuration of gadolinium (atomic no. 64) is

(a) $[Xe]4s^8 5d^9 6s^2$

(b) $[Xe]4f^7 5d^1 6s^2$

(c) $[Xe]4s^3 5d^5 6s^2$

(d) $[Xe]4f^6 5d^2 6s^2$

125. An e^- has magnetic quantum number as -3, what is its principal quantum number

(a) 1 (b) 2

(c) 3 (d) 4

126. The number of quantum numbers required to describe an electron in an atom completely is

(a) 1 (b) 2

(c) 3 (d) 4

127. The electronic configuration $1s^2 2s^2 2p_x^1 2p_y^1 2p_z^1$

(a) Oxygen (b) Nitrogen

(c) Hydrogen (d) Fluorine

128. Which one of the following set of quantum numbers is not possible for $4p$ electron

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

(b) $n = 4, l = 1, m = 0, s = +\frac{1}{2}$

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

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

129. Which of the following orbital is not possible

(a) 3 *f* (b) 4 *f*

(c) 5 *f* (d) 6 *f*

130. Which set of quantum numbers for an electron of an atom is not possible
(a) $n = 1, l = 0, m = 0, s = +1/2$
(b) $n = 1, l = 1, m = 1, s = +1/2$
(c) $n = 1, l = 0, m = 0, s = -1/2$
(d) $n = 2, l = 1, m = -1, s = +1/2$

131. Electronic configuration of ferric ion is
(a) $[Ar]3d^5$ (b) $[Ar]3d^7$
(c) $[Ar]3d^3$ (d) $[Ar]3d^8$

132. What is the maximum number of electrons which can be accommodated in an atom in which the highest principal quantum number value is 4
(a) 10 (b) 18
(c) 32 (d) 54

133. Which of the following electronic configurations is not possible
(a) $1s^2 2s^2$
(b) $1s^2 2s^2 2p^6$
(c) $3d^{10} 4s^2 4p^2$
(d) $1s^2 2s^2 2p^2 3s^1$

134. The electronic configuration of an element is $1s^2 2s^2 2p^6 3s^2 3p^6 3d^5 4s^1$. This represents its
(a) Excited state
(b) Ground state
(c) Cationic form
(d) Anionic form

135. Which of the following set of quantum numbers is possible
(a) $n = 3; l = 2; m = 2$ and $s = +\frac{1}{2}$
(b) $n = 3; l = 4; m = 0$ and $s = -\frac{1}{2}$
(c) $n = 4; l = 0; m = 2$ and $s = +\frac{1}{2}$
(d) $n = 4; l = 4; m = 3$ and $s = +\frac{1}{2}$

136. Which of the following set of quantum number is not valid
(a) $n = 1, l = 2$ (b) $3 = 2, m = 1$
(c) $m = 3, l = 0$ (d) $3 = 4, l = 2$

137. Which one pair of atoms or ions will have same configuration
(a) F^+ and Ne
(b) Li^+ and He^-
(c) Cl^- and Ar
(d) Na and *K*

138. Which of the following sets of quantum number is not possible
(a) $n = 3; l = +2; m = 0; s = +\frac{1}{2}$
(b) $n = 3; l = 0; m = 0; s = -\frac{1}{2}$
(c) $n = 3; l = 0; m = -1; s = +\frac{1}{2}$
(d) $n = 3; l = 1; m = 0; s = -\frac{1}{2}$

139. Which of the following set of quantum numbers is correct for the 19^{th} electron of chromium

	n	*l*	*m*	*s*
(a)	3	0	0	1/2
(b)	3	2	– 2	1/2
(c)	4	0	0	1/2
(d)	4	1	–1	1/2

140. When the value of azimuthal quantum number is 3, magnetic quantum number can have values

(a) + 1, 0, – 1

(b) + 2, + 1, 0, – 1, – 2

(c) – 3, – 2, – 1, – 0, + 1, + 2, + 3

(d) + 1, – 1

141. The quantum numbers $n = 2, l = 1$ represent

(a) 1*s* orbital (b) 2*s* orbital

(c) 2*p* orbital (d) 3*d* orbital

142. The magnetic quantum number of valence electron of sodium (*Na*) is

(a) 3 (b) 2

(c) 1 (d) 0

143. Azimuthal quantum number defines

(a) *e*/*m* ratio of electron

(b) Spin of electron

(c) Angular momentum of electron

(d) Magnetic momentum of electron

144. Quantum numbers of an atom can be defined on the basis of

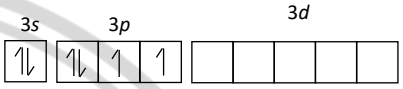
(a) Hund's rule

(b) Aufbau's principle

(c) Pauli's exclusion principle

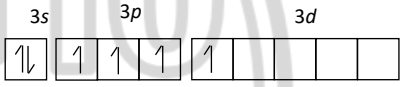
(d) Heisenberg's uncertainty principle

145. Which of the following has maximum energy

(a) 

(b) 

(c) 

(d) 

146. The total magnetic quantum numbers for *d*-orbital is given by

(a) 2 (b) 0, ± 1, ± 2

(c) 0, 1, 2 (d) 5

147. The outer electronic structure $3s^2 3p^5$ is possessed by

(a) *Cl* (b) *O*

(c) *Ar* (d) *Br*

148. Which of the following set of quantum number is not possible

	n	*l*	m_1	m_2
(a)	3	2	1	+ 1/2
(b)	3	2	1	– 1/2
(c)	3	2	1	0
(d)	5	2	– 1	+ 1/2

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

(a) Excited state of O_2^-

(b) Excited state of neon

(c) Excited state of fluorine

(d) Ground state of fluorine atom

150. The quantum number '*m*' of a free gaseous atom is associated with

(a) The effective volume of the orbital

(b) The shape of the orbital

(c) The spatial orientation of the orbital

(d) The energy of the orbital in the absence of a magnetic field