126. The energy of different orbitals in an atom or ion having only one electron, depends on

(a) n only
(b) n and l only
(c) n, l and m only
(d) n, l, m and s

127. The size of an orbital is given by

(a) principal quantum number
(b) azimuthal quantum number
(c) magnetic quantum number
(d) spin quantum number

128. The types and number of orbitals belonging from the fifth orbit are, respectively,

(a) 5, 25 (b) 25, 5
(c) 4, 16 (d) 5, 5

129. The electron in the same orbital may be identified with the quantum number

(a) n (b) l
(c) m (d) s

130. The orbital angular momentum of an electron is 2s orbital is

(a) $+\frac{1}{2}.\frac{h}{2\pi}$ (b) 0

(c) $\frac{h}{2\pi}$ (d) $\sqrt{2}\,\frac{h}{2\pi}$

131. The orbital angular momentum of a 4p electron will be

(a) $4.\frac{h}{2\pi}$ (b) $\sqrt{2}.\frac{h}{2\pi}$

(c) $\sqrt{6}.\frac{h}{4\pi}$ (d) $\sqrt{2}.\frac{h}{4\pi}$

132. The probability of finding P_y electron is zero in

(a) XY-plane (b) YZ-plane
(c) XZ-plane (d) Y-axis

133. The quantum number which determines the shape of the orbital is

(a) Magnetic quantum no.
(b) Azimuthal quantum no.
(c) Principal quantum no.
(d) Spin quantum no.

134. Orbital with maximum symmetry is

(a) p-orbital (b) s-orbital
(c) d_{xy}-orbital (d) d_{z^2}-orbital

135. In presence of external magnetic field, p-orbital is

(a) 3-fold degenerate
(b) 5-fold degenerate
(c) 7-fold degenerate
(d) non-degenerate

136. The number of orbitals of g-type

(a) 5 (b) 7
(c) 9 (d) 11

137. Which of the following orbital does not exist according to quantum theory?

(a) 5g (b) 4f
(c) 5h (d) 6h

138. Which of the following set of quantum numbers is permissible?

(a) 4, 1, +2, +1/2 (b) 4, 2, –1, +1/2
(c) 4, 0, 0, 1 (d) 4, 4, +2, –1/2

139. Number of orbitals represented by $n = 3$, $l = 2$ and $m = +2$ is

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

140. The quantum numbers +1/2 and –1/2 for the electron spin represent

(a) rotation of the electron in clockwise and anticlockwise direction, respectively.
(b) rotation of the electron in anticlockwise and clockwise direction, respectively.
(c) magnetic moment of the electron pointing up and down, respectively.
(d) two quantum mechanical spin states which have no classical analogue.

Quantum Numbers

126. (a) 127. (a) 128. (a) 129. (d) 130. (b) 131. (b) 132. (c) 133. (b) 134. (b) 135. (d)
136. (c) 137. (c) 138. (b) 139. (a) 140. (d)