Date Planned : __ / __ / __	Daily Tutorial Sheet – 11	Expected Duration : 90 Min
Actual Date of Attempt : __ / __ / __	Numerical Value Type for JEE Main	Exact Duration :_____

126. A certain dye absorbs light of $\lambda = 400\,\text{nm}$ and then fluoresence light of wavelength 500 nm. Assuming that under given condition 40% of the absorbed energy is re-emitted as fluorescence. Calculate the ratio of quanta absorbed to number of quanta emitted out.

127. How many electrons in Cu have azimuthal quantum number equal to zero?

128. The electron in hydrogen like species Li^{2+} is in a spherically symmetric state "A" with one radial node. Upon absorbing light the electron in ion undergoes transition to a state "B". The state "B" has one radial node and its energy is equal to the ground state energy of the hydrogen atom. The orbital angular momentum quantum number of the state "B" is .....

129. The maximum number of electrons that can have principal quantum number, n = 3 and spin quantum number, $m_s = -\frac{1}{2}$ is .....

130. Maximum number of electrons in an orbital having n = 4 and l = 2 are :

131. To which quantum level does the electron jump in H atom from the lowest level if it is given an energy corresponding to 99% of the ionization potential of hydrogen atom?

132. An electron in the first excited state of H atom absorbs a photon and is further excited. The de-Broglie wavelength of the electron in this state is found to 13.4 Å . Identify the energy level to which electron is excited.

133. In a hydrogen like species 47.2 eV energy is required to excite the electron from second Bohr orbit to the third Bohr orbit. Identify atomic number of hydrogen like species.

134. At what minimum atomic number, a transition from n = 2 to n = 1 energy level would result in the emission of radiation with wavelength $\lambda = 3.0 \times 10^{-8}\,\text{m}$?

135. How many number of atomic orbitals associated with M-shell have zero nodal plane.

136. The number of d-electrons in Fe^{2+} are .....

137. If uncertainty in the measurement of position and momentum of an electron are equal then uncertainty in the measurement of its velocity is approximately $x \times 10^{12}\,\text{m/s}$. The value of x is .....

138. How many atomic orbitals of the following have more than one node?

$1s, 2s, 3p_x, 3d_{xy}, 3d_{z^2}, 4p_z, 4d_{x^2-y^2}$

139. How many waves are made by electron in one complete revolution around nucleus in fourth orbit of hydrogen like species.

140. The orbital angular momentum of electron in 4s orbital of H atom is .....

141. How many of the following atomic orbitals of H atom are degenerate?

$3s, 3p_x, 3p_y, 3p_z, 3d_{xy}, 3d_{yz}, 3d_{xz}, 3d_{x^2-y^2}, 3d_{z^2}$