Daily Tutorial Sheet 6	Level – 2

76.(A) Number of spectral lines = $\frac{n(n-1)}{2} = \frac{5(5-1)}{2} = 10$ {n = number of levels available for transition}.

77.(C) Use $\lambda = \frac{h}{p} = \frac{h}{mv} = \frac{6.63\times10^{-34}}{0.2\times5}\times3600 \approx 2.4\times10^{-30}$

78.(D) $r \propto \frac{n^2}{Z}; \frac{r_1}{r_2} = \frac{(1)^2}{(3)^2} \quad \Rightarrow \quad r_2 = 9r_1$

79.(A) Definition of Hund's rule.

80.(C) Learn as fact.

81.(A) Number of orbitals = $n^2 = 3^2 = 9$

82.(C) Electrons in same orbital are always opposite in spin.

83.(D) Radial nodes for s orbitals = Spherical nodes = $n - \ell - 1$

84.(B) For Z = 105, electronic configuration is

$1s^2\ 2s^2\ 2p^6\ 3s^2\ 3p^6\ 4s^2\ 3d^{10}\ 4p^6\ 4d^{10}\ 5s^2\ 5p^6\ 4f^{14}\ 5d^{10}\ 6s^2\ 6p6d^3\ 7s^2$

$\therefore$ Number of electrons with $n + l = 8$ are 17

85.(D) Refer to Theory – Wave Mechanical Model of Atom