Daily Tutorial Sheet 10	Level – 2

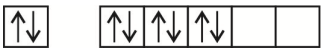
116.(A) Since one visible quanta is there, hence the transition must be to the second quantum number. Hence the final transition is $2 \rightarrow 1$.

117.(B) Radio wave have maximum wavelength

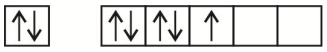
118.(A) Zeeman effect explains splitting in magnetic field.

119.(C) Fact

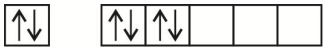
120.(ABC) Zero probability will be for P_z.

121.(B) Fe $4s^2$ $3d^6$ 

Fe^{+2} $3d^6$ no. of unpaired electrons = 0

Mn $4s^2$ $3d^5$ 

Mn^+ $4s^1$ $3d^4$ no. of unpaired electrons = 2

Cr $4s^2$ $3d^4$ 

no. of unpaired electrons = 0

$\therefore$ order of magnetic moment $\boxed{Mn^+ > Cr = Fe^{+2}}$

122. (B) For 2s : $\ell = 0$ $\left[\text{orbital Angular momentum } \sqrt{\ell(\ell+1)}\,\frac{h}{2\pi} = 0\right]$

123. (D) F (Z = 9) : $ls^2\ 2s^2\ 2p^5$: p-orbital has $5e^-$s.

Na(Z = 11); $ls^2\ 2s^2\ 2p^6\ 3s^1$: s-orbital has $5e^-$s

Fe^{3+} (Z = 26) : $1s^2\ 2s^2\ 2p^6\ 3s^2\ 3p^6\ 3d^5$: d-orbital has $5e^-$s.

Mn (Z = 25) : $1s^2\ 2s^2\ 2p^6\ 3s^2\ 3p^6 3d^5\ 4s^2$: d-orbital has $5e^-$s.

124(D) First line in Balmer series is due $n = 3 \longrightarrow n = 2$ transition

$$\bar{v} = R_H\left(\frac{1}{4} - \frac{1}{9}\right) = R_H \cdot \frac{5}{36}$$

125.(C) 3s is more closer to the nucleus.

3s > 3p > 3d.