

pg 172-178 #1, 2, 3

#1)

$$n=3$$

$$\hookrightarrow l=0, 1, 2 \rightarrow m_l = -2, -1, 0, 1, 2 \left. \vphantom{\hookrightarrow} \right\} 9 \text{ total}$$

$$\begin{array}{c} \downarrow \\ m_l=0 \end{array} \begin{array}{c} \leftarrow \\ \rightarrow \end{array} \begin{array}{c} m_l = -1, 0, +1 \end{array}$$

#2) $l=0$ orbital

$$m_l = -2, -1, 0, +1, +2$$

#3) a) $2s$, $n=2$, $l=0$, $m_l=0$

b) $3p$, $n=3$, $l=1$, $m_l = -1, 0, +1$

c) $5d$, $n=5$, $l=2$, $m_l = -2, -1, 0, +1, +2$

d) $4f$, $n=4$, $l=3$, $m_l = -3, -2, -1, 0, +1, +2, +3$