

4. (a) We use Eq. 41-2:

$$L = \sqrt{l(l+1)} \hbar = \sqrt{3(3+1)} (1.055 \times 10^{-34} \text{ J}\cdot\text{s}) = 3.653 \times 10^{-34} \text{ J}\cdot\text{s} .$$

- (b) We use Eq. 41-7: $L_z = m_l \hbar$. For the maximum value of L_z set $m_l = l$. Thus

$$[L_z]_{\text{max}} = l\hbar = 3(1.055 \times 10^{-34} \text{ J}\cdot\text{s}) = 3.165 \times 10^{-34} \text{ J}\cdot\text{s} .$$