

| $\lambda$<br>( $m_a$ )            | 4   | 1   | 0   |
|-----------------------------------|---|---|---|
|                                   | 2   | 1   | 2   |
| basis for $E_\lambda$             | $\begin{pmatrix} 0 \\ -\frac{4}{3} \\ 1 \\ 0 \end{pmatrix}, \begin{pmatrix} \frac{3}{4} \\ 0 \\ 0 \\ 1 \end{pmatrix}$   | $\begin{pmatrix} -\frac{4}{3} \\ 0 \\ 0 \\ 1 \end{pmatrix}$           | $\begin{pmatrix} 0 \\ 1 \\ 0 \\ 0 \end{pmatrix}, \begin{pmatrix} 0 \\ \frac{3}{4} \\ 1 \\ 0 \end{pmatrix}$                |
| orthonormal basis for $E_\lambda$ | $\begin{pmatrix} 0 \\ 0 \\ -\frac{4}{5} \\ \frac{3}{5} \\ 0 \end{pmatrix}, \begin{pmatrix} \frac{3}{5} \\ 0 \\ 0 \\ 0 \\ \frac{4}{5} \end{pmatrix}$   | $\begin{pmatrix} -\frac{4}{5} \\ 0 \\ 0 \\ \frac{3}{5} \end{pmatrix}$ | $\begin{pmatrix} 0 \\ 1 \\ 0 \\ 0 \end{pmatrix}, \begin{pmatrix} 0 \\ 0 \\ \frac{3}{5} \\ \frac{4}{5} \\ 0 \end{pmatrix}$ |
| $\Lambda =$                       | $\begin{pmatrix} 4 & 0 & 0 & 0 & 0 \\ 0 & 4 & 0 & 0 & 0 \\ 0 & 0 & 1 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 \end{pmatrix}$   |   |   |
| $V =$                             | $\begin{pmatrix} 0 & \frac{3}{5} & -\frac{4}{5} & 0 & 0 \\ 0 & 0 & 0 & 1 & 0 \\ -\frac{4}{5} & 0 & 0 & 0 & \frac{3}{5} \\ \frac{3}{5} & 0 & 0 & 0 & \frac{4}{5} \\ 0 & \frac{4}{5} & \frac{3}{5} & 0 & 0 \end{pmatrix}$ |   |   |