

$$U = \left(\frac{1}{\sqrt{2}}, 0, \frac{-1}{\sqrt{2}}\right), \left(\frac{1}{\sqrt{6}}, \frac{\sqrt{2}}{\sqrt{3}}, \frac{1}{\sqrt{6}}\right), \left(\frac{1}{\sqrt{3}}, \frac{-1}{\sqrt{3}}, \frac{1}{\sqrt{3}}\right)$$