$$\frac{1}{\sqrt{3!}}\left\{ |a\ \underset{+}{b}\ c\rangle + |c\ \underset{+}{a}\ b\rangle + |b\ \underset{+}{c}\ a\rangle - |b\ \underset{-}{a}\ c\rangle - |c\ \underset{-}{b}\ a\rangle - |a\ \underset{-}{c}\ b\rangle \right\}$$

$$\langle a\ \underset{+}{b}\ c|\ \frac{e^2}{r_{23}}\ |a\ \underset{+}{b}\ c\rangle \qquad \langle a|a\rangle\langle b\ c|\ \frac{e^2}{r_{23}}\ |b\ c\rangle$$

$$+\langle a\ \underset{+}{b}\ c|\ \frac{e^2}{r_{23}}\ |c\ \underset{+}{a}\ b\rangle \qquad \cancel{\langle a|c\rangle\langle b\ c|\ \frac{e^2}{r_{23}}\ |a\ b\rangle}$$

$$+\langle a\ \underset{+}{b}\ c|\ \frac{e^2}{r_{23}}\ |b\ \underset{+}{c}\ a\rangle \qquad \cancel{\langle a|b\rangle\langle b\ c|\ \frac{e^2}{r_{23}}\ |c\ a\rangle}$$

$$-\langle a\ \underset{+}{b}\ c|\ \frac{e^2}{r_{23}}\ |b\ \underset{-}{a}\ c\rangle \qquad \cancel{\langle a|b\rangle\langle b\ c|\ \frac{e^2}{r_{23}}\ |a\ c\rangle}$$

$$-\langle a\ \underset{+}{b}\ c|\ \frac{e^2}{r_{23}}\ |c\ \underset{-}{b}\ a\rangle - \qquad \cancel{\langle a|c\rangle\langle b\ c|\ \frac{e^2}{r_{23}}\ |b\ a\rangle}$$

$$-\langle a\ \underset{+}{b}\ c|\ \frac{e^2}{r_{23}}\ |a\ \underset{-}{c}\ b\rangle \qquad \langle a|a\rangle\langle b\ c|\ \frac{e^2}{r_{23}}\ |c\ b\rangle$$