22. (a) The figure implies that the the instantaneous current through the leftmost inductor is the same as that through the rightmost one, which means there is no current through the middle inductor (at any instant). Applying the loop rule to the outer loop (including the rightmost and leftmost inductors), with the current suitably related to the rate of change of charge, we find

$$2L\,\frac{d^2q}{dt^2} + \frac{2}{C}\,q = 0 \quad \Longrightarrow \quad \omega = \frac{1}{\sqrt{(2L)(C/2)}} = \frac{1}{\sqrt{LC}}\ .$$

(b) In this case, we see that the middle inductor must have current $2i(t)$ flowing downward, and application of the loop rule to, say, the left loop leads to

$$L\,\frac{d^2q}{dt^2} + L\left(2\,\frac{d^2q}{dt^2}\right) + \frac{1}{C}\,q = 0 \quad \Longrightarrow \quad \omega = \frac{1}{\sqrt{(3L)(C)}} = \frac{1}{\sqrt{3LC}}\ .$$