26. The equation of motion for the proton is

$$\begin{aligned}\vec{F} &= q\vec{v}\times\vec{B} = q(v_x\hat{\imath}+v_y\hat{\jmath}+v_z\hat{k})\times B\hat{\imath} = qB(v_z\hat{\jmath}-v_y\hat{k}) \\ &= m_p\vec{a} = m_p\left[\left(\frac{dv_x}{dt}\right)\hat{\imath}+\left(\frac{dv_y}{dt}\right)\hat{\jmath}+\left(\frac{dv_z}{dt}\right)\hat{k}\right] .\end{aligned}$$

Thus,

$$\begin{aligned}\frac{dv_x}{dt} &= 0 \\ \frac{dv_y}{dt} &= \omega v_z \\ \frac{dv_z}{dt} &= -\omega v_y ,\end{aligned}$$

where $\omega = eB/m_p$. The solution is $v_x = v_{0x}$, $v_y = v_{0y}\cos\omega t$ and $v_z = -v_{0y}\sin\omega t$. In summary, we have $\vec{v}(t) = v_{0x}\hat{\imath} + v_{0y}\cos(\omega t)\hat{\jmath} - v_{0y}(\sin\omega t)\hat{k}$.