What is the mean lifetime of $2p$ hydrogen?

Let us begin by writing down the wave function ψ for hydrogen.

$$\psi_{nlm}(r,\theta,\phi) = R_{nl}(r)Y_{lm}(\theta,\phi)$$

where

$$R_{nl}(r) = \frac{2}{n^2}\left(\frac{(n-l-1)!}{(n+l)!}\right)^{1/2}\left(\frac{2r}{na_0}\right)^l L_{n-l-1}^{2l+1}\left(\frac{2r}{na_0}\right)\exp\left(-\frac{r}{na_0}\right)a_0^{-3/2}$$

$$L_n^m(x) = (n+m)!\sum_{k=0}^{n}\frac{(-x)^k}{(n-k)!(m+k)!k!}$$

$$Y_{lm}(\theta,\phi) = (-1)^m\left(\frac{2l+1}{4\pi}\right)^{1/2}\left(\frac{(l-m)!}{(l+m)!}\right)^{1/2}P_l^m(\cos\theta)\exp(im\phi)$$

$$P_n^m(x) = \frac{1}{2^n n!}(1-x^2)^{m/2}\frac{d^{n+m}}{dx^{n+m}}(x^2-1)^n$$

$$a_0 = \frac{4\pi\varepsilon_0\hbar^2}{e^2\mu} \approx 0.529\times 10^{-10}\,\text{meter}$$

The state $2p$ means that $n=2$ and $l=1$. That leaves three ways to choose m hence all of the following processes correspond to the transition $2p\rightarrow 1s$.

$$\left.\begin{matrix}\psi_{2,1,1}\\ \psi_{2,1,0}\\ \psi_{2,1,-1}\end{matrix}\right\}\rightarrow\psi_{1,0,0}$$