$$\beta(a) = \frac{1}{\sqrt{6}}$$

$$m^2(a) = H_0^2 \left(\frac{4\Omega_{\Lambda,0} + \Omega_{M,0}}{(n+1) f_{R,0}} \right) \left(\frac{4\Omega_{\Lambda,0} + \Omega_{M,0} a^{-3}}{4\Omega_{\Lambda,0} + \Omega_{M,0}} \right)^{n+2}$$