vi) $H = \frac{2}{3t}$

but $H = \frac{1}{R}\frac{dR}{dt}$

$\therefore \frac{1}{R}\frac{dR}{dt} = \frac{2}{3t}$

$\frac{dR}{R} = \frac{2}{3t}dt$

$\int_{Rd}^{R_0} \frac{dR}{R} = \int_{td}^{t_0} \frac{2}{3}\frac{dt}{t}$

$\left[\ln R\right]_{Rd}^{R_0} = \left[\frac{2}{3}\ln t\right]_{td}^{t_0}$

$\ln\left(\frac{R_0}{R_d}\right) = \frac{2}{3}\ln\left(\frac{t_0}{t_d}\right) = \ln\left(\left(\frac{t_0}{t_d}\right)^{2/3}\right)$

$\therefore \frac{R_0}{R_d} = \left(\frac{t_0}{t_d}\right)^{2/3}$

Rearranging $\left(\frac{R_0}{R_d}\right)^{3/2} = \frac{t_0}{t_d}$

$t_d = t_0 \Big/ \left(\frac{R_0}{R_d}\right)^{3/2}$

$t_d = t_0\left(\frac{R_0}{R_d}\right)^{-3/2}$

with $t_0 = \frac{2}{3H_0} = \frac{2}{3\times 2\times 10^{-18}\,s^{-1}} = 3.33333\times 10^{17}\,s$

and $\frac{R_0}{R_d} = 884.73$

$t_d = 3.33333\times 10^{17}\,s\,(884.73)^{3/2} = 1.26667E135$

$H(t_d) = \frac{2}{3t} = \frac{2}{3\times 1.26667\times 10^{135}\,s} = 5.26\times 10^{-136}\,s^{-1}$