$V_d = 12\,V$, $V_o = 24\,V$, $L = 150\,\mu H$, $C = 470\,\mu F$, $f_s = 20\,kHz$

From the solution of Problem 7-8

$$I_{oB} = 0.5\,A$$

$$\therefore \quad I_o = \frac{I_{oB}}{2} = 0.25\,A$$

From Eq. 7-31

$$I_{oB,max} = 0.074\,\frac{T_s V_o}{L} = 0.592\,A$$

From Eq. 7-38

$$D = \left[\frac{4}{27}\left(\frac{V_o}{V_d}\right)\left(\frac{V_o}{V_d} - 1\right)\frac{I_o}{I_{oB,max}}\right]^{1/2}$$

$$= \left[\frac{4}{27}(2)(1)\frac{0.25}{0.592}\right]^{1/2} = 0.354$$

From the expression derived in Problem 7-10

$$\Delta V_o = \frac{1}{2\times 150\times 10^{-6}\times 470\times 10^{-6}}\,\frac{(12\times 0.354\times 50\times 10^{-6} - 150\times 10^{-6}\times 0.25)^2}{(24-12)}$$

$$= 18.1\,mV$$