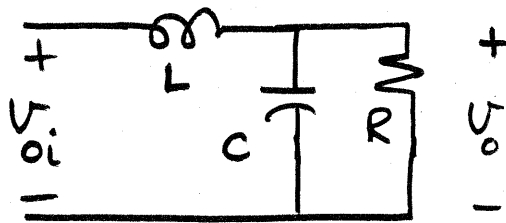


Problem 1-4

$$V_d = 20V, \quad D = 0.75, \quad f_s = 300 \text{ kHz}, \quad P_o = 240W.$$



$$L = 1.3 \mu H,$$

$$C = 50 \mu F.$$

$$V_{oi} = 15V = V_o(\text{avg}).$$

Assuming the ripple in the output voltage to be negligible,

$$R = \frac{V_o^2}{P_o} = 0.9375 \Omega.$$

$$\therefore \frac{V_o(s)}{V_{oi}(s)} = \frac{(R) \parallel \left(\frac{1}{Cs}\right)}{sL + \left[R \parallel \left(\frac{1}{Cs}\right)\right]} = \frac{R}{(RLC)s^2 + Ls + R}$$

$$h \quad 20 \log_{10} \left| \frac{V_o(s)}{V_{oi}(s)} \right|$$

$$s = j\omega_h$$

$$= j(2\pi \times h \times f_s)$$

$$1 \quad -47.4 \text{ db}$$

$$2 \quad -59.4$$

$$3 \quad -66.4$$

$$4 \quad -71.4$$

$$5 \quad -75.3$$

⋮