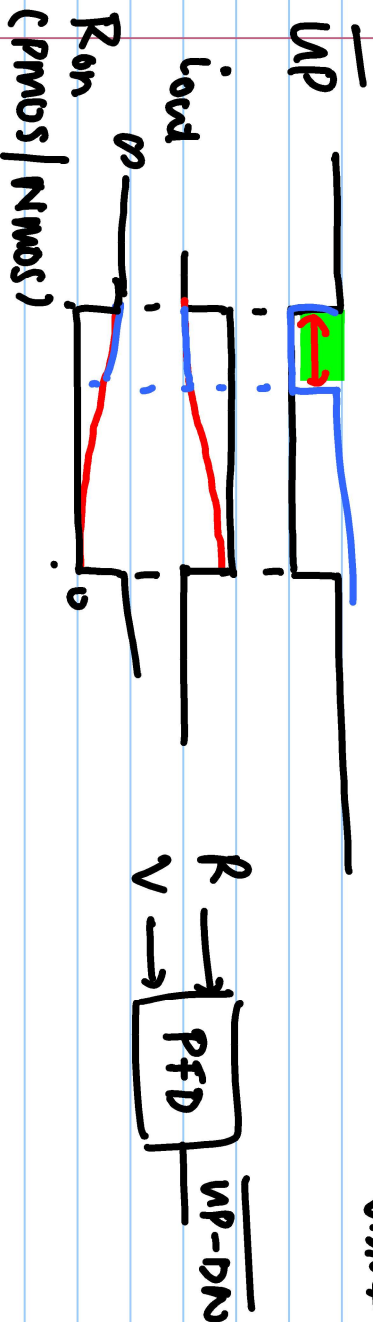
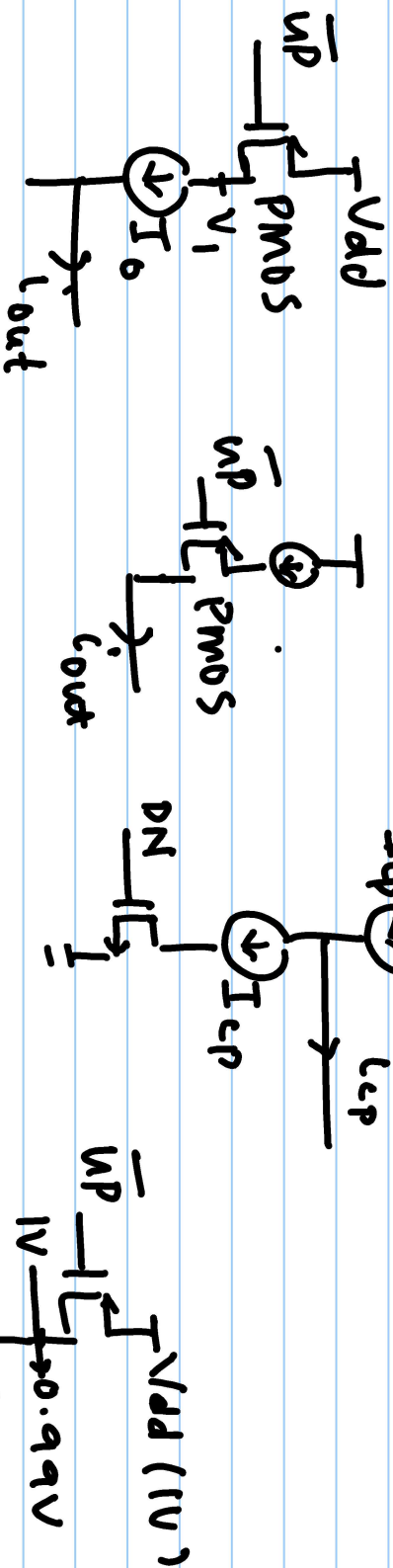
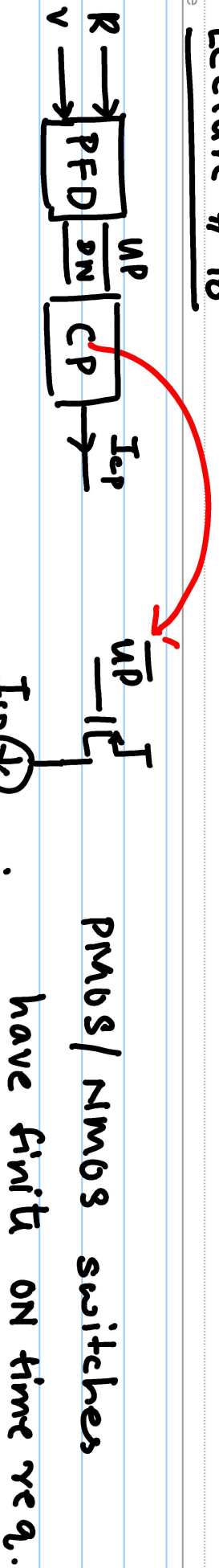
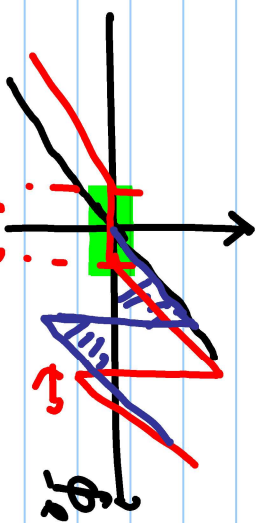
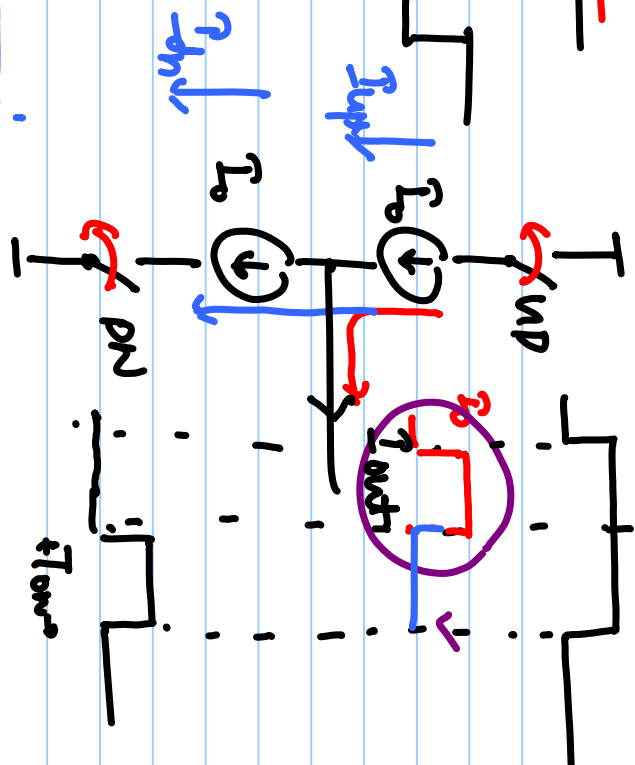
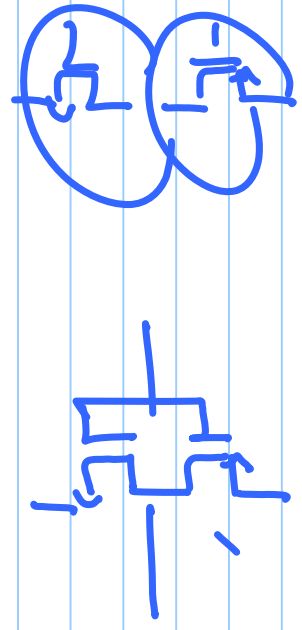
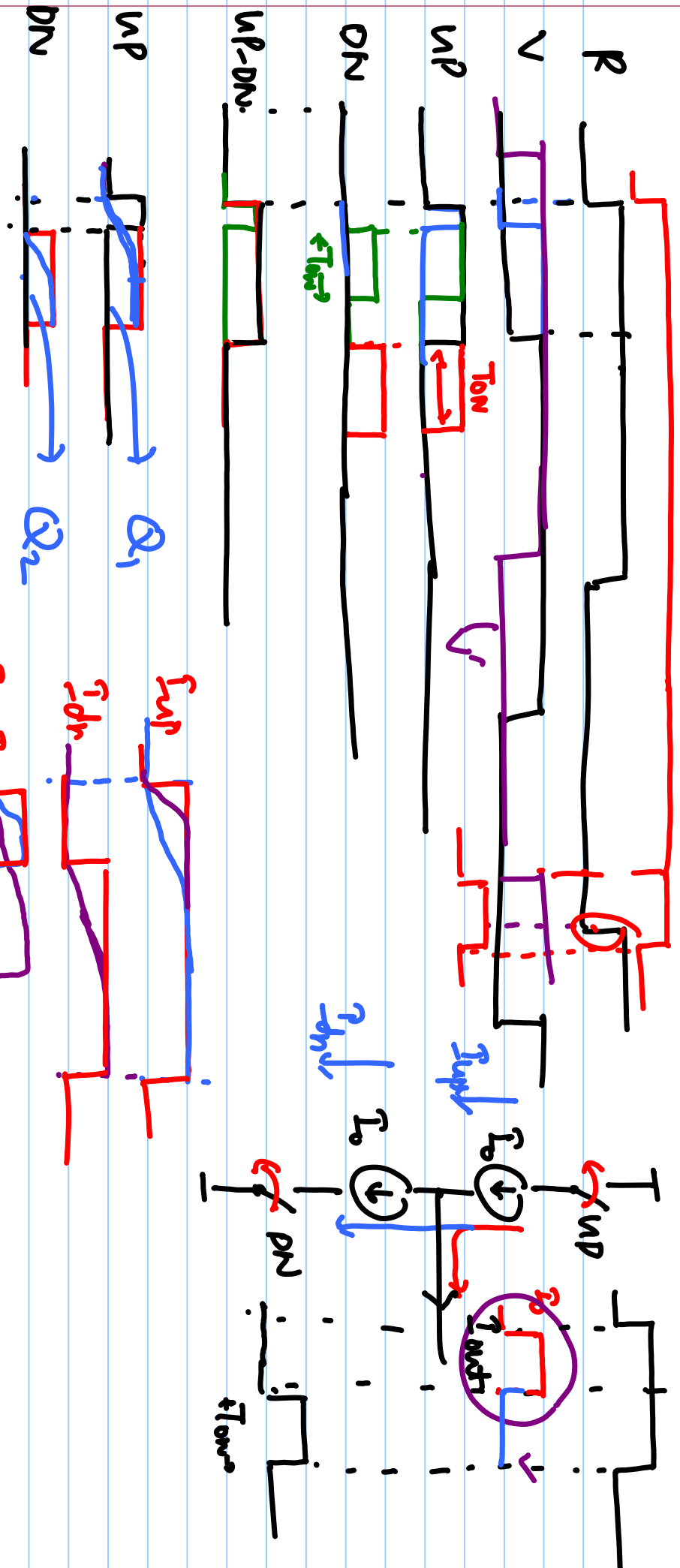


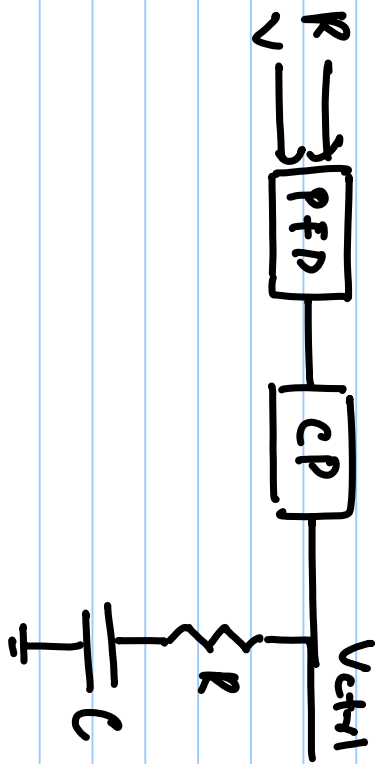
Lecture # 18



⇒ Minimum ON time required for switches





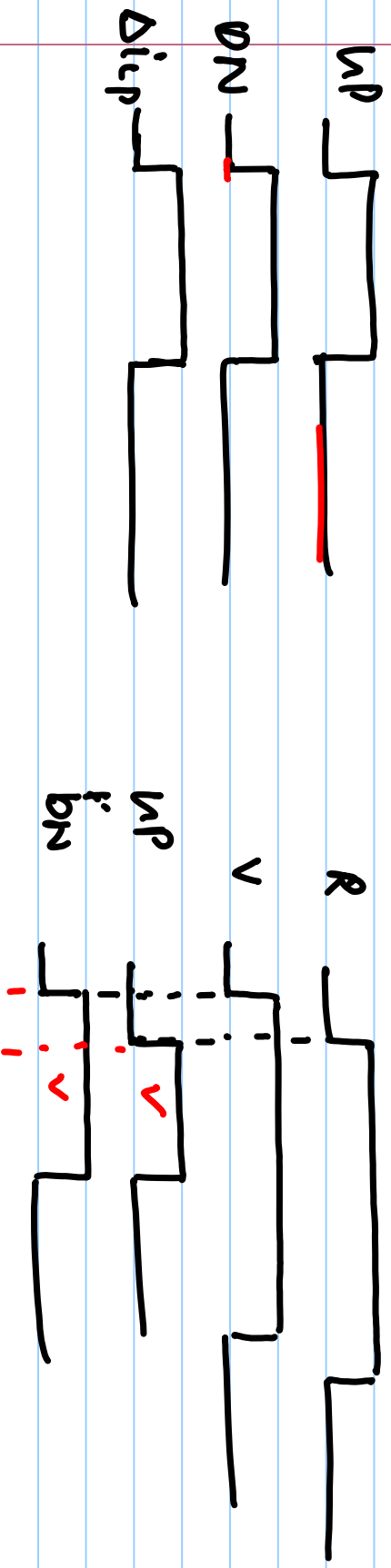
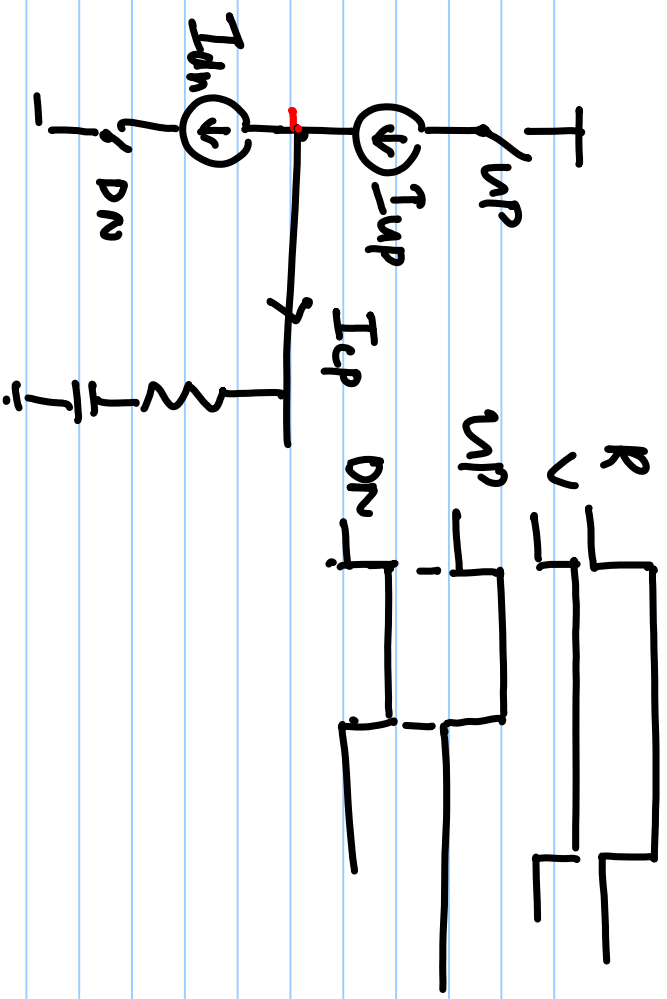


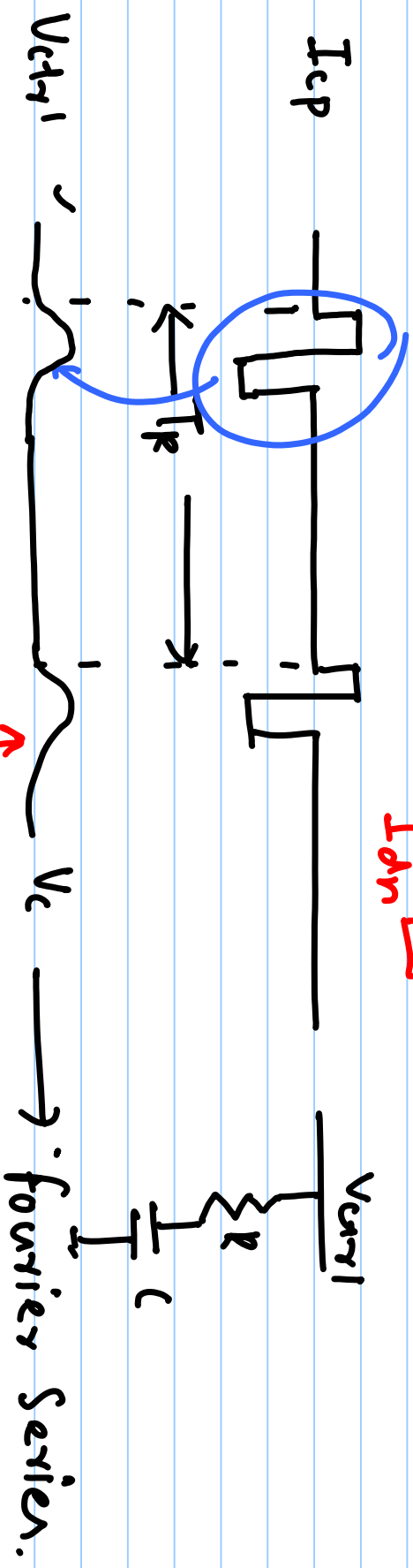
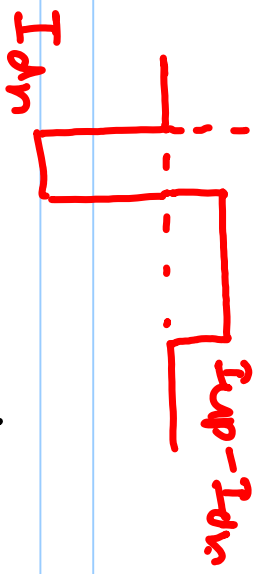
$$I_{up} = I_{dn}$$

if $I_{up} = I_{dn}$

$$\Delta i_{cp} = I_{up} - I_{dn} = \Delta I$$

for $I_{up} > I_{dn}$





$$V_{out} = \sin(\omega_{ret} t + 2\pi K_{vco} \int (V_{in1,0} + v_c) dt)$$

$$= \sin(\omega_0 t + 2\pi K_{vco} a_b \sin(\omega_{ret} t)) \cdot a_b$$

$\sin(\theta) = \theta$
 $\cos(\theta) = 1$
 $\theta \ll \pi$

$\omega_0 \pm \omega_{ret}$

Ref. Spur.

Ref. spur -y dBc = -40 dBc

$a = 0 \text{ dB}$, $|y| = 40 \text{ dB}$, -15

