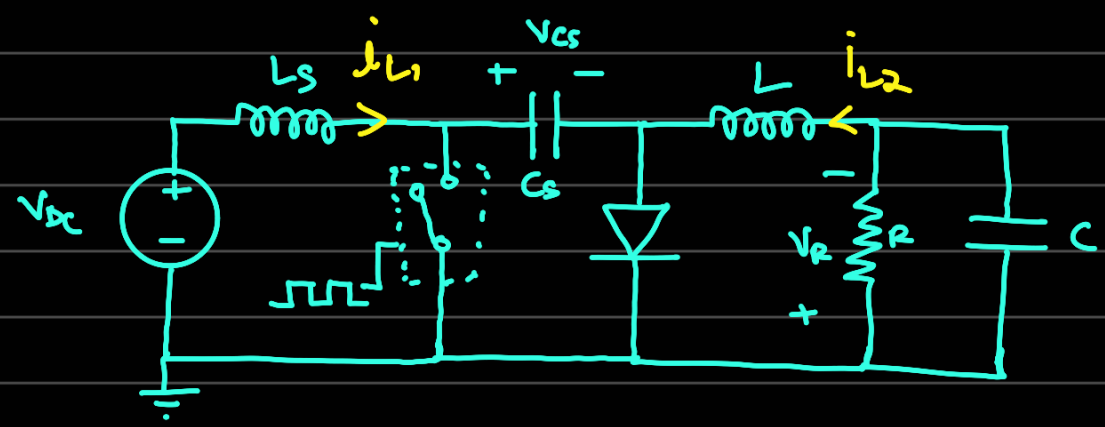
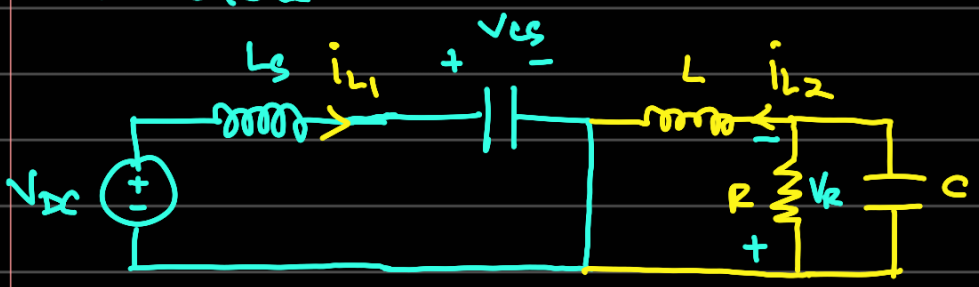
Day 16

(Day 15 – Quiz)

→ Cuk Converter :

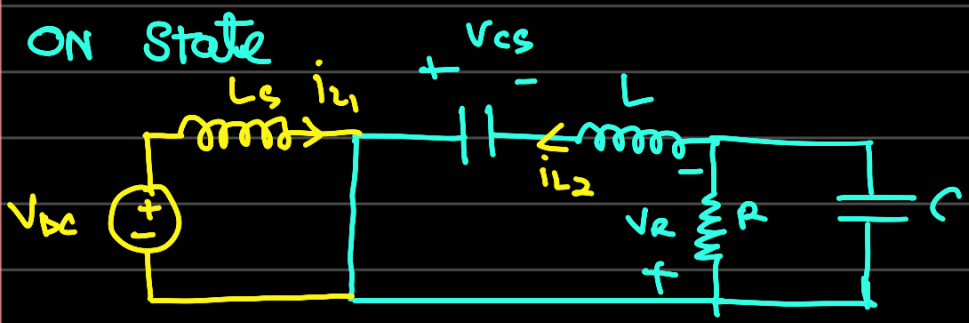


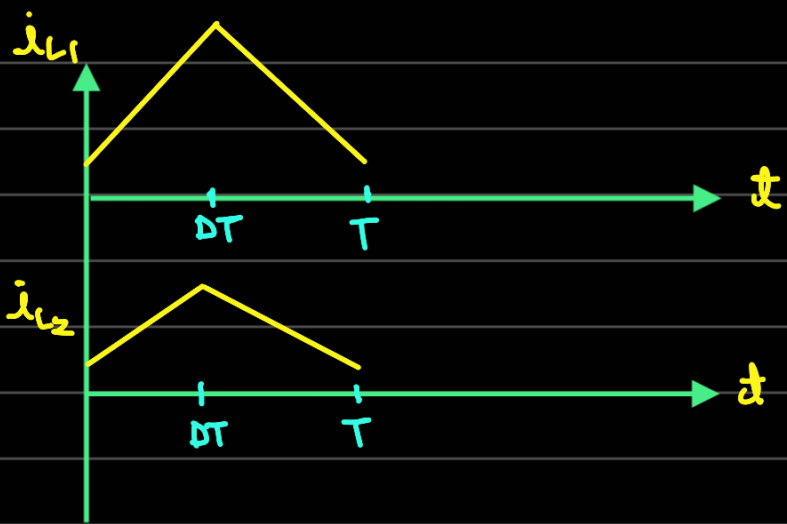
OFF State



$V_R = 0$

ON State





(Figures are not to scale)

$$(V_{CS} - V_R) DT = V_R (1-D) T$$

$$\Rightarrow V_{CS} D - V_R D = V_R - D V_R$$
$$\Rightarrow V_R = D V_{CS}$$

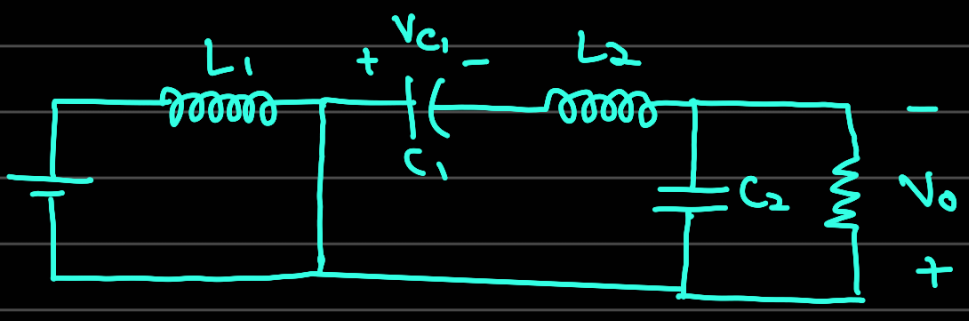
Now, $V_{DC} DT = (V_{CS} - V_{DC})(1-D) T$

$$\Rightarrow D V_{DC} = -V_{DC} + V_{CS} + D V_{DC} - D V_{CS}$$
$$\Rightarrow V_{CS} = \frac{V_{DC}}{1-D}$$

So $$V_R = \frac{D V_{DC}}{1-D}$$

Let's follow Doolla Sir!

ON State:



$$+V_o + V_{DC} - V_{C_1} = 0 \Rightarrow V_{C_1} = V_o + V_{DC}$$

OFF State