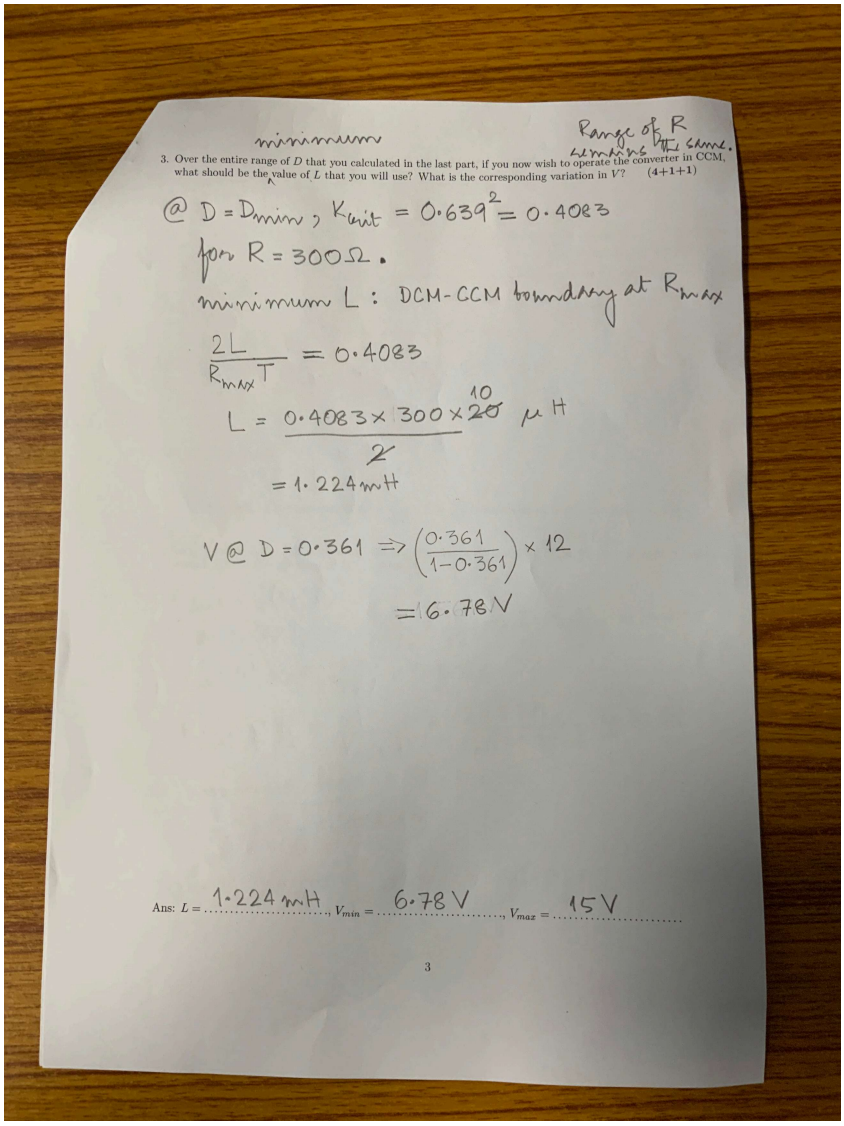

minimum

Range of R remains the same.

3. Over the entire range of D that you calculated in the last part, if you now wish to operate the converter in CCM, what should be the value of L that you will use? What is the corresponding variation in V? (4+1+1)

@ $D = D_{min}$; $K_{crit} = 0.639^2 = 0.4083$

for $R = 300\Omega$.

minimum L : DCM-CCM boundary at R_{max}

$$\frac{2L}{R_{max}T} = 0.4083$$

$$L = \frac{0.4083 \times 300 \times 20}{2} \mu H$$

$$= 1.224 mH$$

V @ $D = 0.361 \Rightarrow \left(\frac{0.361}{1-0.361}\right) \times 12$

$= 6.78 V$

Ans: $L =$ 1.224 mH, $V_{min} =$ 6.78 V, $V_{max} =$ 15 V