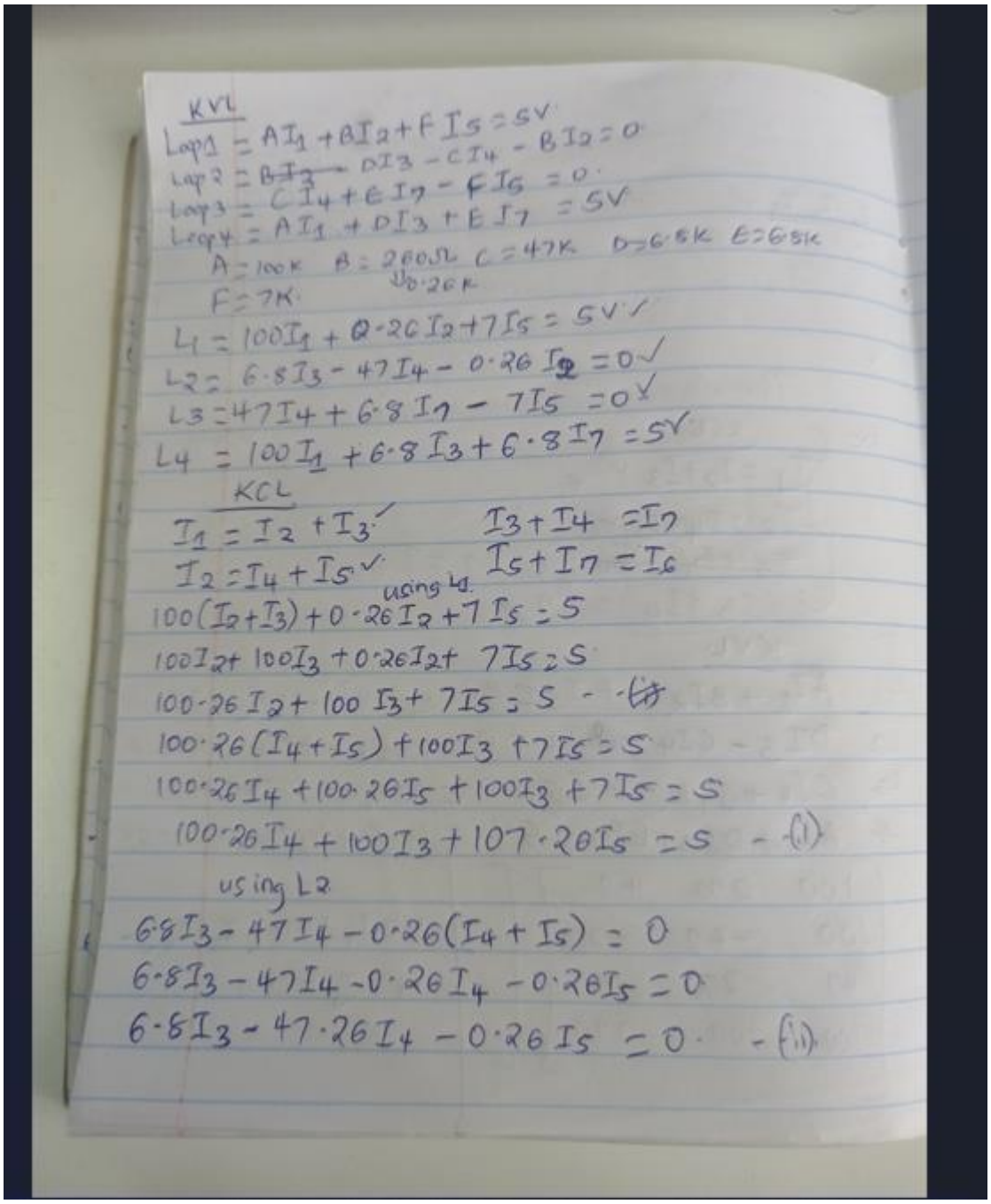
Calculation for currents in the circuit.



KVL

Loop1 = $AI_1 + BI_2 + FI_5 = 5V$

Loop2 = ~~BI_2~~ $- DI_3 - CI_4 - BI_2 = 0$

Loop3 = $CI_4 + EI_7 - FI_5 = 0$

Loop4 = $AI_1 + DI_3 + EI_7 = 5V$

A = 100K B = 260Ω C = 47K D = 6.8K E = 6.8K

F = 7K 0.26K

$L_1 = 100I_1 + 0.26I_2 + 7I_5 = 5V$ ✓

$L_2 = 6.8I_3 - 47I_4 - 0.26I_2 = 0$ ✓

$L_3 = 47I_4 + 6.8I_7 - 7I_5 = 0$ ✓

$L_4 = 100I_1 + 6.8I_3 + 6.8I_7 = 5V$ ✓

KCL

$I_1 = I_2 + I_3$ ✓ $\quad I_3 + I_4 = I_7$

$I_2 = I_4 + I_5$ ✓ $\quad I_5 + I_7 = I_6$

using L4.

$100(I_2 + I_3) + 0.26I_2 + 7I_5 = 5$

$100I_2 + 100I_3 + 0.26I_2 + 7I_5 = 5$

$100.26I_2 + 100I_3 + 7I_5 = 5$ - (i)

$100.26(I_4 + I_5) + 100I_3 + 7I_5 = 5$

$100.26I_4 + 100.26I_5 + 100I_3 + 7I_5 = 5$

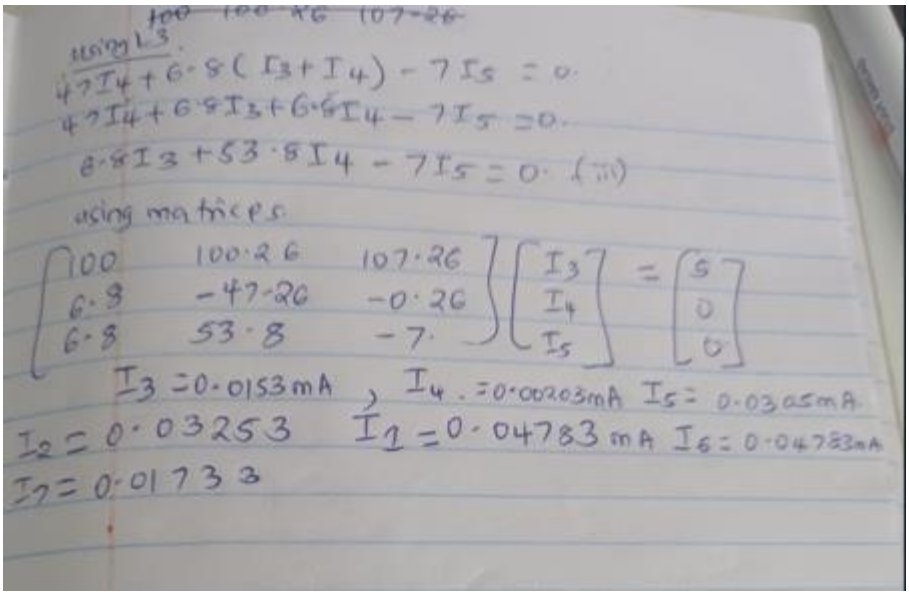
$100.26I_4 + 100I_3 + 107.26I_5 = 5$ - (i)

using L2

$6.8I_3 - 47I_4 - 0.26(I_4 + I_5) = 0$

$6.8I_3 - 47I_4 - 0.26I_4 - 0.26I_5 = 0$

$6.8I_3 - 47.26I_4 - 0.26I_5 = 0$ - (ii)



using L3.

$47I_4 + 6.8(I_3 + I_4) - 7I_5 = 0$

$47I_4 + 6.8I_3 + 6.8I_4 - 7I_5 = 0$

$6.8I_3 + 53.8I_4 - 7I_5 = 0$ ... (iii)

using matrices

$$\begin{bmatrix} 100 & 100.26 & 107.26 \\ 6.8 & -47.26 & -0.26 \\ 6.8 & 53.8 & -7 \end{bmatrix} \begin{bmatrix} I_3 \\ I_4 \\ I_5 \end{bmatrix} = \begin{bmatrix} 5 \\ 0 \\ 0 \end{bmatrix}$$

$I_3 = 0.0153\,mA$, $I_4 = 0.00203\,mA$ $I_5 = 0.0305\,mA$

$I_2 = 0.03253$ $I_1 = 0.04783\,mA$ $I_6 = 0.04783\,mA$

$I_7 = 0.01733$