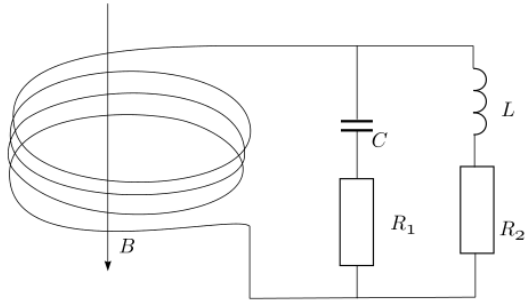
8. Magnetic pulse ***(7 points)*** Consider an electric circuit consisting of a coil of negligibly small inductance, consisting of $N = 10$ turns and with the surface area of a single loop $S = 10\,\mathrm{cm}^2$), resistors $R_1 = R_2 = 3\,\Omega$, capacitor $C = 0.2\,\mathrm{F}$, and an inductance $L = 1\,\mathrm{H}$, connected as shown in Fig. At the moment of time $t = 0$, a magnetic field, parallel to the axis of the coil is switched on. The inductance of the magnetic field starts growing linearly, starting from $B = 0$ until the maximal value $B = 1\,\mathrm{T}$ is achieved at $t = 10\,\mathrm{ms}$. Further, the inductance of the magnetic field remains constant (and equal to 1 T).



i) Find the current through the resistors R_1 and R_2 at the moment of time $t_1 = 5\,\mathrm{ms}$.

ii) Find the current through the resistors R_1 and R_2 at the moment of time $t_2 = 15\,\mathrm{ms}$.

iii) What is the net charge passing through the resistor R_2?