In[7]:=
```
sol = DSolve[{
    ω'[t] == (Km i[t] - T - d ω[t]) / J,
    i'[t] == (V - Km ω[t] - R i[t]) / L,
    ω[0] == ω0,
    i[0] == i0
   }, {ω[t], i[t]}, t] // First // Simplify;
```

In[12]:=
```
sol2 = sol /. { Sqrt[d^2 L^2 + J^2 R^2 - 2 J L (2 Km^2 + d R)] t / (J L) → Ω t,
  (d L + J R + Sqrt[d^2 L^2 + J^2 R^2 - 2 J L (2 Km^2 + d R)]) t / (2 J L) → Γ t,
  -(d L + J R + Sqrt[d^2 L^2 + J^2 R^2 - 2 J L (2 Km^2 + d R)]) t / (2 J L) → -Γ t};
sol2 //
 Simplify
```

Out[13]=
$$\left\{i[t] \to \left(e^{-t\Gamma}\left(i0\left(Km^2 + d\,R\right)\right.\right.\right.$$
$$\left(\left(1 + e^{t\Omega}\right) J^2 R^2 + d\,L\left(d\left(1 + e^{t\Omega}\right) L + \left(-1 + e^{t\Omega}\right)\sqrt{d^2 L^2 + J^2 R^2 - 2\,J\,L\left(2\,Km^2 + d\,R\right)}\right) -\right.$$
$$J\left(4\left(1 + e^{t\Omega}\right) Km^2 L + 2\,d\left(1 + e^{t\Omega}\right) L\,R + \left(-1 + e^{t\Omega}\right) R\right.$$
$$\left.\sqrt{d^2 L^2 + J^2 R^2 - 2\,J\,L\left(2\,Km^2 + d\,R\right)}\right)\Big) - \left(1 - 2\,e^{t\Gamma} + e^{t\Omega}\right) J^2 R^2\,(Km\,T + d\,V) -$$
$$d\,L\left(d\left(1 - 2\,e^{t\Gamma} + e^{t\Omega}\right) L + \left(-1 + e^{t\Omega}\right)\sqrt{d^2 L^2 + J^2 R^2 - 2\,J\,L\left(2\,Km^2 + d\,R\right)}\right)(Km\,T + d\,V) +$$
$$J\left(2\,Km^2\left(2\,d\left(1 - 2\,e^{t\Gamma} + e^{t\Omega}\right) L + \left(-1 + e^{t\Omega}\right)\sqrt{d^2 L^2 + J^2 R^2 - 2\,J\,L\left(2\,Km^2 + d\,R\right)}\right) V +\right.$$
$$d\,R\left(2\,d\left(1 - 2\,e^{t\Gamma} + e^{t\Omega}\right) L + \left(-1 + e^{t\Omega}\right)\sqrt{d^2 L^2 + J^2 R^2 - 2\,J\,L\left(2\,Km^2 + d\,R\right)}\right) V +$$
$$2\,Km^3\left(2\left(1 - 2\,e^{t\Gamma} + e^{t\Omega}\right) L\,T - \left(-1 + e^{t\Omega}\right)\sqrt{d^2 L^2 + J^2 R^2 - 2\,J\,L\left(2\,Km^2 + d\,R\right)}\;\omega 0\right) -$$
$$Km\,R\left(-2\,d\left(1 - 2\,e^{t\Gamma} + e^{t\Omega}\right) L\,T + \left(-1 + e^{t\Omega}\right)\sqrt{d^2 L^2 + J^2 R^2 - 2\,J\,L\left(2\,Km^2 + d\,R\right)}\;T +\right.$$
$$\left.\left.\left.\left.2\,d\left(-1 + e^{t\Omega}\right)\sqrt{d^2 L^2 + J^2 R^2 - 2\,J\,L\left(2\,Km^2 + d\,R\right)}\;\omega 0\right)\right)\right)\Big/$$
$$\left(2\left(Km^2 + d\,R\right)\left(d^2 L^2 + J^2 R^2 - 2\,J\,L\left(2\,Km^2 + d\,R\right)\right)\right),\ \omega[$$
$$t] \to$$

$$\left(e^{-t\,\Gamma}\left(2\left(-1+e^{t\,\Omega}\right)\,i0\,Km\,L\left(Km^2+d\,R\right)\sqrt{d^2\,L^2+J^2\,R^2-2\,J\,L\left(2\,Km^2+d\,R\right)}\;+\right.\right.$$
$$J^2\,R^2\left(\left(1-2\,e^{t\,\Gamma}+e^{t\,\Omega}\right)\,R\,T-\left(1-2\,e^{t\,\Gamma}+e^{t\,\Omega}\right)\,Km\,V+\left(1+e^{t\,\Omega}\right)\,Km^2\,\omega 0+d\left(1+e^{t\,\Omega}\right)\,R\,\omega 0\right)-$$
$$J\left(-4\left(1-2\,e^{t\,\Gamma}+e^{t\,\Omega}\right)\,Km^3\,L\,V+\right.$$
$$Km\,R\left(-2\,d\left(1-2\,e^{t\,\Gamma}+e^{t\,\Omega}\right)\,L+\left(-1+e^{t\,\Omega}\right)\sqrt{d^2\,L^2+J^2\,R^2-2\,J\,L\left(2\,Km^2+d\,R\right)}\right)\,V+$$
$$4\left(1+e^{t\,\Omega}\right)\,Km^4\,L\,\omega 0+Km^2\,R\left(4\left(1-2\,e^{t\,\Gamma}+e^{t\,\Omega}\right)\,L\,T+6\,d\left(1+e^{t\,\Omega}\right)\,L\,\omega 0-\right.$$
$$\left.\left(-1+e^{t\,\Omega}\right)\sqrt{d^2\,L^2+J^2\,R^2-2\,J\,L\left(2\,Km^2+d\,R\right)}\;\omega 0\right)-$$
$$R^2\left(-2\,d\left(1-2\,e^{t\,\Gamma}+e^{t\,\Omega}\right)\,L\,T+\left(-1+e^{t\,\Omega}\right)\sqrt{d^2\,L^2+J^2\,R^2-2\,J\,L\left(2\,Km^2+d\,R\right)}\;T-\right.$$
$$\left.\left.2\,d^2\left(1+e^{t\,\Omega}\right)\,L\,\omega 0+d\left(-1+e^{t\,\Omega}\right)\sqrt{d^2\,L^2+J^2\,R^2-2\,J\,L\left(2\,Km^2+d\,R\right)}\;\omega 0\right)\right)+$$
$$L\left(-2\left(-1+e^{t\,\Omega}\right)\,Km^2\sqrt{d^2\,L^2+J^2\,R^2-2\,J\,L\left(2\,Km^2+d\,R\right)}\;T+d^3\left(1+e^{t\,\Omega}\right)\,L\,R\,\omega 0-\right.$$
$$d\left(-1+e^{t\,\Omega}\right)\sqrt{d^2\,L^2+J^2\,R^2-2\,J\,L\left(2\,Km^2+d\,R\right)}\;\left(R\,T+Km\left(V+Km\,\omega 0\right)\right)+$$
$$d^2\left(\left(1-2\,e^{t\,\Gamma}+e^{t\,\Omega}\right)\,L\,R\,T-\left(-1+e^{t\,\Omega}\right)\,R\sqrt{d^2\,L^2+J^2\,R^2-2\,J\,L\left(2\,Km^2+d\,R\right)}\;\omega 0+\right.$$
$$\left.\left.\left.\left.Km\,L\left(-\left(1-2\,e^{t\,\Gamma}+e^{t\,\Omega}\right)\,V+\left(1+e^{t\,\Omega}\right)\,Km\,\omega 0\right)\right)\right)\right)\Big/$$
$$\left.\left.\left(2\left(Km^2+d\,R\right)\left(d^2\,L^2+J^2\,R^2-2\,J\,L\left(2\,Km^2+d\,R\right)\right)\right)\right)\right\}$$