Module name: **Electrical Circuits 2**
Module ID: **IS-FEE-10085S**
Module type: **Class**
Semester: **summer 2023/2024**
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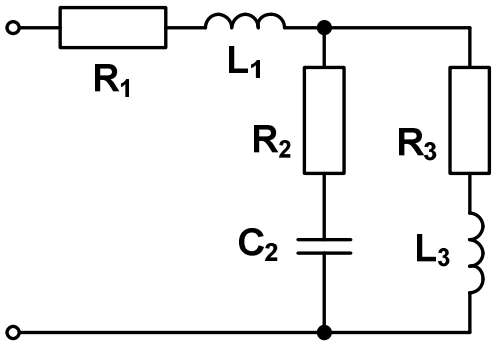
Class 1 (27.02.2024)

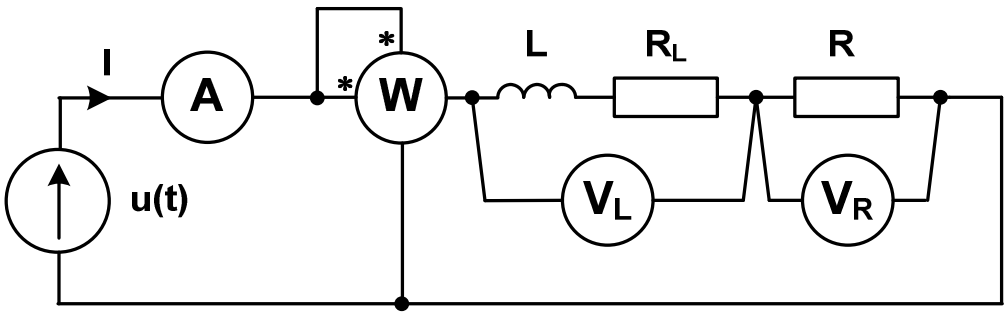
1. Calculate the **equivalent impedance** of the circuit shown in the figure.

   R_1 = 10 Ω, R_2 = 5 Ω, R_3 = 15 Ω,
   L_1 = 50 mH, L_3 = 200 mH, C_2 = 1 mF,
   ω = 100 rad/s



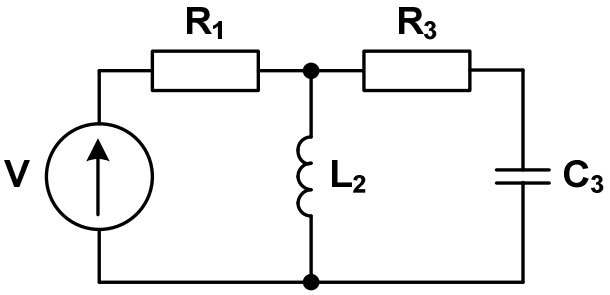
2. Calculate **meter readings** in the circuit shown in the figure.

   u(t) = 230√2sinωt V, L = 0.2 H, R_L = 40 Ω, R = 100 Ω, f = 50 Hz.



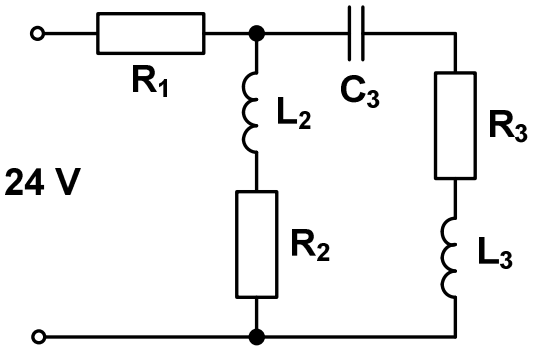
3. In the circuit as shown in the figure, the resistor **R_3** has the maximum power **P_3 = 8 W**. Check if this is enough for the correct operation of this system.

   V = 24∠60° V, R_1 = 4 Ω, X_{L2} = 6 Ω,
   R_3 = 8 Ω, X_{C3} = 4 Ω.



4. The circuit as shown in the figure has been protected by a **6 A** overcurrent circuit breaker. Check that it will ensure continuous operation of this circuit when supplied with a sine wave voltage of 24 V rms.

$R_1 = 2\ \Omega$, $X_{L2} = 2\ \Omega$, $R_2 = 2\ \Omega$, $X_{C3} = 4\ \Omega$, $R_3 = 4\ \Omega$, $X_{L3} = 6\ \Omega$



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