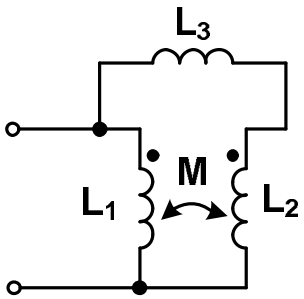
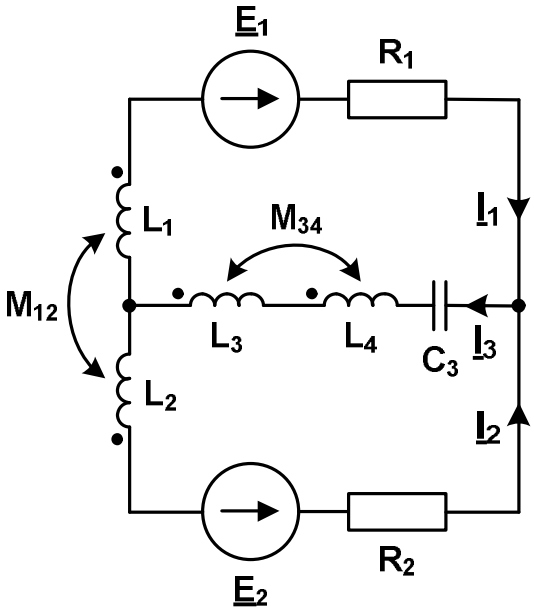
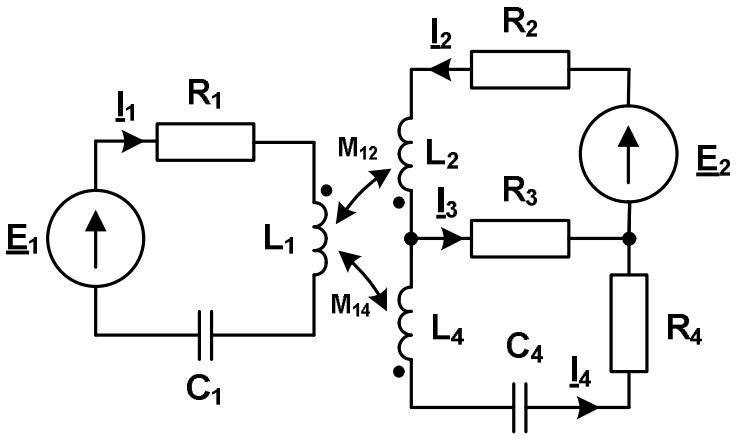
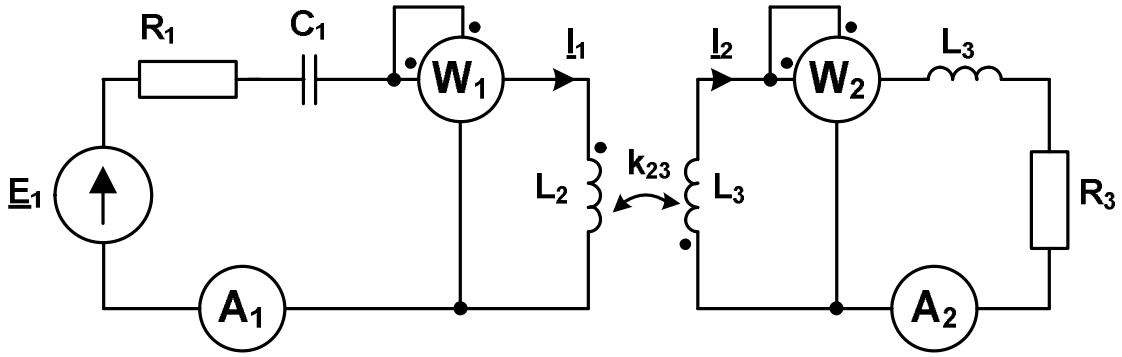
ELECTRICAL CIRCUITS 2 (IS-FEE-10085S) - TEST 1 (EXAMPLE) - PART 1

PROBLEM TO BE SOLVED IN A GROUP	Points
1. Calculate the **equivalent inductance** of the two-terminal network. $L_1 = 0.4$ H, $L_2 = 0.6$ H, $L_3 = 0.2$ H, $M = 0.2$ H 	3
2. In the circuit shown in the figure, calculate the **power** dissipated by resistors $\mathbf{R_1}$ and $\mathbf{R_2}$. $\underline{E}_1 = 100$ V, $\underline{E}_2 = j50$ V, $X_{L1} = 60\ \Omega$, $X_{L2} = 80\ \Omega$, $X_{M12} = 50\ \Omega$, $X_{L3} = 40\ \Omega$, $X_{L4} = 40\ \Omega$, $X_{M34} = 20\ \Omega$, $R_1 = 50\ \Omega$, $R_2 = 25\ \Omega$, $X_{C3} = 40\ \Omega$ 	9

ELECTRICAL CIRCUITS 2 (IS-FEE-10085S) - TEST 1 (EXAMPLE) - PART 2

PROBLEMS TO BE SOLVED INDIVIDUALLY	Points
3. For the given circuit diagram, write the equations based on Kirchhoff's current and voltage laws. Remember to use the appropriate signs and the **j** symbol for reactances. 	6
4. Calculate the **results of measurements** made by the instruments. $\underline{E}_1 = 120$ V, $R_1 = 40\ \Omega$, $X_{C1} = 50\ \Omega$, $X_{L2} = 25\ \Omega$, $X_{L3} = 25\ \Omega$, $X_{L3} = 40\ \Omega$, $R_3 = 50\ \Omega$, $k_{23} = 0.4$ 	12

Note: 16 points are required to pass the test.