

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

PROBLEM TO BE SOLVED IN A GROUP	Points
<p>1. In the circuit shown in the figure, calculate the power dissipated by resistors R_1 and R_2.</p> <p>$\underline{E}_1 = 100 \text{ V}$, $\underline{E}_2 = j50 \text{ V}$, $X_{L1} = 60 \Omega$, $X_{L2} = 80 \Omega$, $X_{M12} = 50 \Omega$, $X_{L3} = 40 \Omega$, $X_{L4} = 40 \Omega$, $X_{M34} = 20 \Omega$, $R_1 = 50 \Omega$, $R_2 = 25 \Omega$, $X_{C3} = 40 \Omega$</p>	10

PROBLEMS TO BE SOLVED INDIVIDUALLY	Points
<p>2. Calculate the equivalent inductance of the two-terminal network.</p> <p>$L_1 = 0.4 \text{ H}$, $L_2 = 0.6 \text{ H}$, $L_3 = 0.2 \text{ H}$, $M = 0.2 \text{ H}$</p>	6

<p>3. Calculate the results of measurements made by the instruments.</p> <p>$\underline{E}_1 = 120 \text{ V}$, $R_1 = 40 \Omega$, $X_{C1} = 50 \Omega$, $X_{L2} = 25 \Omega$, $X_{L3} = 25 \Omega$, $X_{L3} = 40 \Omega$, $R_3 = 50 \Omega$, $k_{23} = 0.4$</p>	14
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Note: 16 points are required to pass the test.