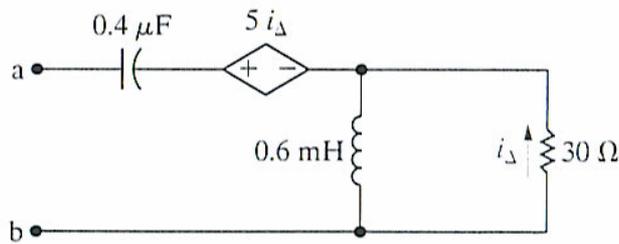


KING FAHD UNIVERSITY OF PETROLEUM & MINERALS
ELECTRICAL ENGINEERING DEPARTMENT
EE-201 ELECTRIC CIRCUITS
Dr. Ibrahim O. Habiballah

Sec: 9 Quiz # 7 Ser. # Name:

I.D.#

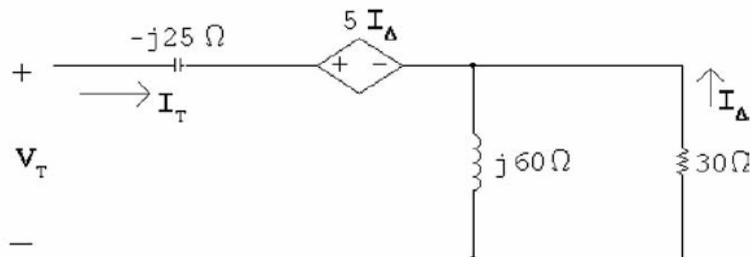
Find Z_{ab} ; $\omega = 100 \times 10^3$ rad/sec.



Solution

$$j\omega L = j100 \times 10^3(0.6 \times 10^{-3}) = j60 \Omega$$

$$\frac{1}{j\omega C} = \frac{-j}{(100 \times 10^3)(0.4 \times 10^{-6})} = -j25 \Omega$$



$$V_T = -j25I_T + 5I_{\Delta} - 30I_{\Delta}$$

$$I_{\Delta} = \frac{-j60}{30 + j60} I_T$$

$$V_T = -j25I_T + 25 \frac{j60}{30 + j60} I_T$$

$$\frac{V_T}{I_T} = Z_{ab} = 20 - j15 = 25 / -36.87^\circ \Omega$$