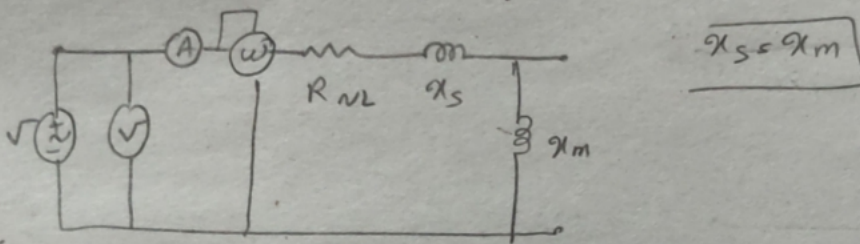


$$\left. \begin{aligned} P_{NL} &= 100 \text{ W} & I_{NL} &= 0.5 \text{ A} & V_{NL} &= 220 \text{ V} \\ P_{BR} &= 50 \text{ W} & I_{BR} &= 0.4 \text{ A} & V_{BR} &= 60 \text{ V} \end{aligned} \right\} R_1 = 10 \Omega$$

$$P_{NL} = R_{NL} \times 3 I_{NL}^2 \Rightarrow R_{NL} = \frac{100}{3 \times \frac{1}{2}} = \frac{200}{3} \Omega$$

$$|Z_{NL}| = \left| \frac{V_{NL}}{I_{NL}} \right| = \frac{220}{0.5} = 440 \Omega \Rightarrow X_{NL} = X_s + X_m =$$

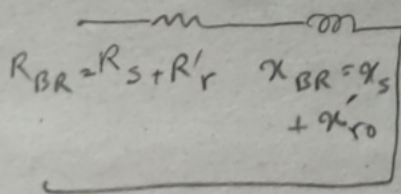
$$\sqrt{Z_{NL}^2 - R_{NL}^2} = \sqrt{440^2 - \frac{200^2}{9}} = 434.921 \Omega$$



$$P_{BR} = \frac{P_{BR}}{3 I_{BR}^2} = \frac{50}{3 \times \frac{16}{25}} = \frac{625}{6} \Omega$$

$$|Z_{BR}| = \left| \frac{V_{BR}}{I_{BR}} \right| = \frac{60}{0.4} = 150 \Omega \Rightarrow X_{BR} = \sqrt{Z_{BR}^2 - R_{BR}^2}$$

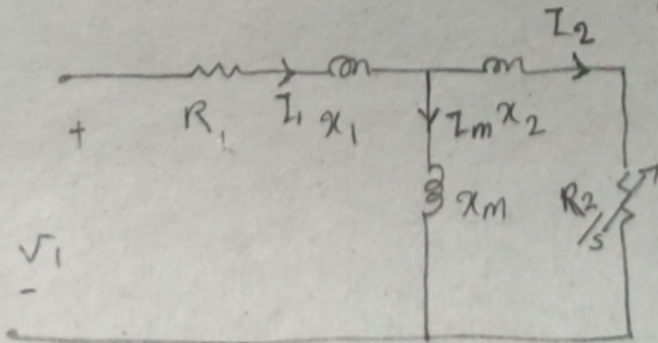
$$\Rightarrow X_{BR} = \sqrt{22500 - \left(\frac{625}{6}\right)^2} = 107.932 \Omega$$



$$R'_r = \frac{625}{6} - \frac{200}{3} = \frac{225}{6} = \frac{75}{2} \Omega$$

$$X_1 = X_2 = \frac{X_{BR}}{2} = 53.966 \Omega$$

$$R_2 = R_{BR} - R_1 = 94.17 \Omega$$



$$X_m = X_{NL} - X_1 =$$

$$X_m = 434.921 - 53.966 =$$

$$\boxed{380.961}$$