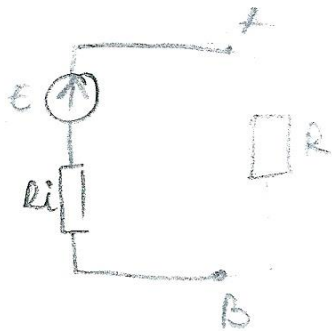


#### 4.5. Teorema transferării maxime de putere

Permite calculul  $\eta$  cu care se transmite putere de la o sursă la altă



$$I = \frac{E}{R_i + R}$$

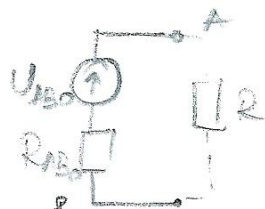
$$P = R \frac{E^2}{(R_i + R)^2}$$

$$\frac{dP}{dR} = 0$$

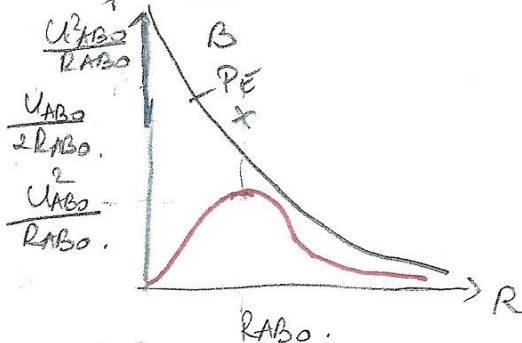
$$\rightarrow \frac{E^2(R_i + R)^2 - 2RE^2(R_i + R)}{(R_i + R)^4} = 0$$

$$\rightarrow \frac{E^2(R_i + R - 2R)}{(R_i + R)^3} = 0 \Rightarrow \boxed{R_i = R}$$

Circuit echivalent:



$$P_{\max} = R \cdot \frac{U_{AB0}^2}{(2R_{AB0})^2} = \frac{U_{AB0}^2}{4R_{AB0}}$$



$$P_E = E \cdot I = U_{AB0} \cdot \frac{U_{AB0}}{2R_{AB0}} = \frac{U_{AB0}^2}{2R_{AB0}}$$

(Put. pt  $R = R_{AB0}$ )

$$R = 0 \Rightarrow P_E = \frac{U_{AB0}^2}{R_{AB0}}$$



$$\eta = \frac{P_u}{P_c} = \frac{\frac{U_{AB0}^2}{4R_{AB0}}}{\frac{U_{AB0}^2}{2R_{AB0}}} = 50\%$$