

Formule iz Osnova Elektrotehnike
koje se mogu koristiti na međuispitima i završnom ispitu (jesen 2006) – III dio

$$Y_{ef} = \sqrt{\frac{1}{T} \int_0^T y(t)^2 dt}$$

$$Y_{sr} = \frac{1}{T} \int_0^T y(t) dt$$

$$\xi = \frac{Y_{ef}}{Y_{sr}}$$

$$\sigma = \frac{Y_m}{Y_{ef}}$$

$$Y_{ef} = \sqrt{Y_0^2 + Y_{1ef}^2 + Y_{2ef}^2 + \dots}$$

$$Y_{sr} = Y_{sr0} \frac{T_i}{T}$$

$$Y_{ef} = Y_{ef0} \sqrt{\frac{T_i}{T}}$$

Snaga:

$$S = UI$$

$$P = UI \cos(\varphi)$$

$$Q = UI \sin(\varphi)$$

$$S^2 = P^2 + Q^2$$

$$S = |\dot{U} \dot{I}^*|$$

$$P = \Re\{\dot{U} \dot{I}^*\}$$

$$Q = \Im\{\dot{U} \dot{I}^*\}$$

$$P_R = I_R^2 R = \frac{U_R^2}{R}$$

$$Q_X = I_X^2 X = \frac{U_X^2}{X}$$

$$S_Z = I_Z^2 Z = \frac{U_Z^2}{Z}$$

$$P_{uk} = \sum P_R$$

$$Q_{uk} = \sum Q_L - \sum Q_C$$

$$S_{uk} = \sqrt{P_{uk}^2 + Q_{uk}^2}$$

$$\underline{Z}_t = \underline{Z}_i^*$$

Teoremi:

$$\dot{U}_{12} = \frac{\sum_{i=1}^n (\dot{E}_i \underline{Y}_i + \dot{I}_i)}{\sum_{i=1}^n \underline{Y}_i}$$

$$\dot{E}_T = \underline{Z}_T \dot{I}_N$$

$$\underline{Z}_T = \underline{Z}_N$$

Trofazni sustav:

spoj u zvijezdu:

$$U_l = \sqrt{3} U_f$$

$$I_l = I_f$$

spoj u trokut:

$$I_l = \sqrt{3} I_f$$

$$U_l = U_f$$

$$P_{uk} = 3P_f = 3U_f I_f \cos(\varphi) = \sqrt{3} U_l I_l \cos(\varphi)$$

$$\dot{U}_{0'0} = \frac{\dot{U}_{R0} \underline{Y}_R + \dot{U}_{S0} \underline{Y}_S + \dot{U}_{T0} \underline{Y}_T}{\underline{Y}_R + \underline{Y}_S + \underline{Y}_T}$$