Formule iz Osnova Elektrotehnike (I dio)
koje se mogu koristiti na međuispitima (jesen 2009)

$$\epsilon_0 = 8.854 \cdot 10^{-12} \frac{As}{Vm}$$

$$\epsilon_r = \frac{\epsilon}{\epsilon_0}$$

$$F = \frac{Q_1 Q_2}{4\pi\epsilon d^2}$$

$$\vec{E} = \frac{\vec{F}}{Q}$$

$$E = \frac{\sigma}{\epsilon}$$

$$E = \frac{Q}{4\pi\epsilon r^2}$$

$$\varphi_A = \frac{W_p}{Q}$$

$$\varphi(x) = -E \cdot x + \varphi_0$$

$$U_{AB} = \varphi_A - \varphi_B$$

$$A_{12} = W_1 - W_2 = QU_{12}$$

$$C = \frac{Q}{U}$$

$$C = \epsilon \frac{S}{d}$$

$$W_C = \frac{QU}{2} = \frac{Q^2}{2C} = \frac{CU^2}{2}$$

$$I = \frac{Q}{t}$$

$$J = NQv$$

$$J = \kappa E = \frac{I}{S}$$

$$R = \frac{U}{I} = \frac{1}{G}$$

$$R = \rho \frac{l}{S}$$

$$G = \kappa \frac{S}{l}$$

$$R_\vartheta = R_{20}[1 + \alpha(\vartheta - 20)]$$

$$W = I^2 Rt$$

$$P = UI = I^2 R = \frac{U^2}{R}$$

$$R_{uk} = R_1 + R_2 + \ldots + R_n \qquad \text{(ser.)}$$

$$\frac{1}{R_{uk}} = \frac{1}{R_1} + \frac{1}{R_2} + \ldots \frac{1}{R_n} \qquad \text{(par.)}$$

$$\frac{1}{C_{uk}} = \frac{1}{C_1} + \frac{1}{C_2} + \ldots \frac{1}{C_n} \qquad \text{(ser.)}$$

$$C_{uk} = C_1 + C_2 + \ldots + C_n \qquad \text{(par.)}$$

$$\sum_{j=1}^{n} I_j = 0 \quad (čvor)$$

$$\sum_{j=1}^{n_{iz}} U_{iz} = \sum_{k=1}^{n_R} R_k \cdot I_k \quad (petlja)$$

$$U_{p.h} = I_{k.s} R_i$$

$$\eta_{naponski} = \frac{R_t}{R_t + R_i}$$

$$\eta_{strujni} = \frac{R_i}{R_t + R_i}$$

$R_1 \cdot R_3 = R_2 \cdot R_4$ (mosni spoj)

transformacija: trokut $\longrightarrow$ zvijezda

$$R_1 = \frac{R_{12} R_{31}}{(R_{12} + R_{23} + R_{31})}$$

$$R_2 = \frac{R_{23} R_{12}}{(R_{12} + R_{23} + R_{31})}$$

$$R_3 = \frac{R_{31} R_{23}}{(R_{12} + R_{23} + R_{31})}$$

transformacija: zvijezda $\longrightarrow$ trokut

$$R_{12} = R_1 + R_2 + \frac{R_1 R_2}{R_3}$$

$$R_{23} = R_2 + R_3 + \frac{R_2 R_3}{R_1}$$

$$R_{31} = R_3 + R_1 + \frac{R_3 R_1}{R_2}$$

$$\mu_0 = 4\pi \cdot 10^{-7} \frac{Vs}{Am}$$

$$\vec{F} = Q(\vec{v} \times \vec{B})$$

$$\vec{F} = I(\vec{l} \times \vec{B})$$

$$|\vec{F}| = IlB \sin(\alpha)$$

$$B = \mu_0 \frac{I}{2\pi r}$$

$$\Phi = \vec{B}\vec{S} = BS \cos(\alpha)$$

$$u_i = Blv$$

$$e_{ind} = -N \frac{d\Phi}{dt}$$

$$e_{ind} = -L \frac{di}{dt}$$

$$L = N \frac{\Phi}{I}$$

$$M_{12} = N_2 \frac{\Phi_{12}}{I_1}$$

$$k = \frac{\Phi_{12}}{\Phi_1}$$

$$M = k\sqrt{L_1 L_2}$$

$$e_M = -M \frac{di}{dt}$$

$$L_s = L_1 + L_2 \pm 2M$$

$$u_L(t) = L \frac{di(t)}{dt}$$

$$u_M(t) = M \frac{di(t)}{dt}$$

$$W_L = \frac{LI^2}{2}$$