Física 3 – Engenharia de Telecomunicações - Formulário 1

Aluno:

$|e| = 1{,}6.10^{-19}\,C \quad K_0 = 9.10^9\,Nm^2/C^2 \quad \varepsilon_0 = 8{,}85.10^{-12}\,C^2/Nm^2 \quad Q = n.e \quad (Q_{total})_{antes} = (Q_{total})_{depois}$

$\vec{F}_r = \vec{F}_1 + \vec{F}_2 + ... \quad |\vec{F}| = \frac{k.|Q_1|.|Q_2|}{r^2} \quad \vec{F} = q.\vec{E} \quad \vec{F}_r = m.\vec{a} \quad V_{esfera} = \frac{4\pi R^3}{3} \quad V_{cilindro} = \pi R^2 L \quad L = 2a$

$A_{esfera} = 4\pi R^2 \quad A_{lateralCilindro} = 2\pi R L \quad A_{circulo} = \pi R^2 \quad \lambda = \frac{Q}{L} \quad \lambda = \frac{Q}{2a} \quad \sigma = \frac{Q}{A} \quad \rho = \frac{Q}{V} \quad p = g.d$

$|\vec{E}| = \frac{k.Q}{r^2} \quad E_p = \frac{k.Q_1.Q_2}{r^2} \quad \vec{E}_r = \vec{E}_1 + \vec{E}_2 + ... \quad E = \frac{k.Q}{d^2 - \frac{L^2}{4}} \quad E = \frac{q}{4\pi\epsilon_0 r^2} \quad F_e = E.q' \quad F_e = \frac{q.q'}{4\pi r^2 \epsilon_0}$

$F_e = \frac{k.q.q'}{r^2} \quad k = \frac{1}{4\pi\epsilon_0} \quad k_{vácuo} = 9x10^9 \quad E_{aro} = \frac{k.Q.x}{(x^2+a^2)^{\frac{3}{2}}} \quad E_{fio} = \frac{k.Q}{x(x^2+a^2)^{\frac{1}{2}}} \quad \phi_E = E.A.\cos(\theta)$

$\phi_E = \frac{q}{\epsilon_0} \quad E.A.\cos(\theta) = \frac{q}{\epsilon_0} \quad E.A = \frac{q}{\epsilon_0} \quad E_P = \frac{q_P}{4\pi r^2 \epsilon_0} \quad Q.V_P = q_P.V \quad q_P = \frac{Q.r^3}{R^3} \quad E_B = \frac{kQ}{R^2}$

$E_P = \frac{Q.r^3}{4.\pi.r^2.R^3.\epsilon_0} \quad E_P = \frac{Q.r}{4.\pi.R^3.\epsilon_0} = \frac{k.Q.r}{R^3} \quad E_S.A = \frac{q}{\epsilon_0} \quad E_S = \frac{k.Q}{r^2} \quad E_S = \frac{Q}{4\pi r^2 \epsilon_0}$

$E = \frac{kQr^2}{R^3} \quad V = \frac{U_e}{q_T} \quad F = -\frac{dU}{dr} \quad U_e = -\int F_e dr \quad U_e = -kq_1q_2\int r^{-2}dr = \frac{kq_1q_2}{r} \quad U_e = \frac{kq_1q_2}{r}$

$V_2 = \frac{U_e}{q_1} = \frac{kq_2}{r} \quad V_1 = \frac{U_e}{q_2} = \frac{kq_1}{r} \quad V = \frac{kq}{r} \quad E = \frac{kq}{r^2} \quad V = E.r \quad \Delta V = \oint \vec{E}.d\vec{l} \quad V_2 - V_1 = \oint \vec{E}.d\vec{l}$

$\vec{E} = -\vec{\nabla}V \quad W = \int \vec{F}.d\vec{x} = F.d.\cos(\theta) \quad W_{TOTAL} = \Delta k = -\Delta U \quad k_i + U_i = k_f + U_f \quad -\Delta_U = \Delta_k \quad \Delta U_e = q.\Delta V$

$W_e = -\Delta U_e \quad W_{ef} = -q.\Delta V \quad \Delta V = V_b - V_a \quad W_e = -e.\Delta V = -q(V_b - V_a) \quad W_{TOTAL} = \Delta k = k_F - k_i$

$k = \frac{1}{2}mv^2 \quad E_F = E_i \quad k_f + U_f = k_i + U_i \quad V = \frac{U_e}{q} \quad U_e = \frac{k.q_1.q_2}{r} \quad E = -\frac{\Delta V}{d} = -\frac{V_b - V_a}{d}$

$-(V_b - V_a) = E.d \quad V_a - V_b = E.d \quad V = \frac{\lambda}{2\pi\epsilon_0}\ln\left(\frac{R}{r}\right)$