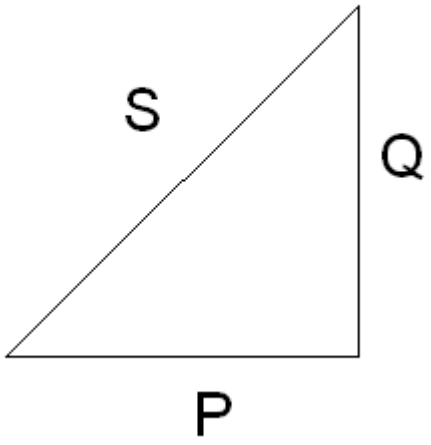
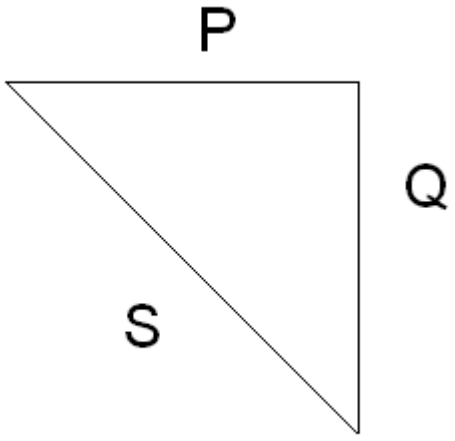
ΘΕΜΑ Α
Α.1.
1. → .δ.
2. →.α
3. → .γ
4. → .δ
5. → .γ

ΘΕΜΑ Β
Β.1
1. → .δ
2.→ .α
3. → .β
4. → .ε

Β2.



α Επαγωγική Συμπεριφορά



β. Χωρητική Συμπεριφορά

Β.3

$$\frac{\pi}{4}+\omega\cdot t=\frac{\pi}{4}+2\cdot\pi\cdot f\cdot t=\frac{\pi}{4}+2\pi\cdot 50\cdot 0,01=\frac{\pi}{4}+\pi\cdot 100\cdot 0,01=$$

$$\frac{\pi}{4}+\pi=\frac{\pi}{4}+\frac{4\pi}{4}=\frac{\pi+4\pi}{4}=\frac{5\pi}{4}=\frac{5\pi}{4}$$

ή

$45^o+\omega\cdot t= 45^o + 2.\pi\cdot f\cdot t=45^o+2\cdot 180^o\cdot 50\cdot 0,01=\cdot 180^o\cdot 100\cdot 0,01=45^o+180^o=225^o$

ΘΕΜΑ Γ

Γ1. $U_R = I\cdot R = 2\cdot 3 = 6\Omega$

Γ2. $R_{o\lambda} = R + R_\pi = 3+1 = 4\Omega$

Γ3. $Z=\sqrt{R_{o\lambda}{}^2+X_L{}^2}=\sqrt{3^2+4^2}=\sqrt{9^2+16^2}=\sqrt{25}=5\Omega$

Γ4. $\sigma\upsilon\nu\phi=\frac{R_{o\lambda}}{Z}=\frac{4}{5}=0,8$

Γ5. $U = Z\cdot I = 5\cdot 2 = 10V$

$P=U\cdot I\cdot\sigma\upsilon\nu\phi=10\cdot 2\cdot 0,8=16W$

ΘΕΜΑ Δ

Δ1. Uφ = 660V

Δ2. $I_\phi=\frac{U_\pi}{R}=\frac{660}{30}=22A$

Δ3. $I_{\gamma\rho}=\sqrt{3}\cdot I_\phi=\sqrt{3}\cdot 22..A$

Δ4. $P_{o\lambda} = \sqrt{3} \cdot U_{\pi o\lambda} \cdot I_{\gamma\rho} \cdot \sigma\upsilon\nu\phi = \sqrt{3} \cdot 660 \cdot 22 \cdot \sqrt{3} \cdot 1 = 45560W$

Δ5. Η ολική αντίσταση του φορτίου, τώρα, είναι:

$$R_{o\lambda} = \frac{R \cdot (R+R)}{R+(R+R)} = \frac{R \cdot 2R}{R+2R} = \frac{2R^2}{3R} = \frac{2R}{3} = \frac{2 \cdot 30}{3} = 20..\Omega$$

$$I' = \frac{U_{\pi o\lambda}}{R_{o\lambda}} = \frac{660}{20} = 33..A$$

Άρα η νέα ισχύς, είναι:

$$P' = U_{\pi o\lambda} \square I' \cdot \sigma\upsilon\nu\phi = 660 \cdot 33 \cdot 1 = 27780..W$$