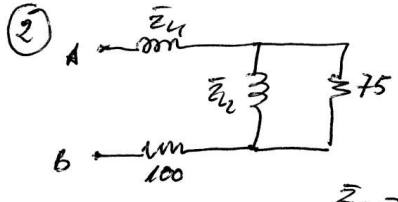


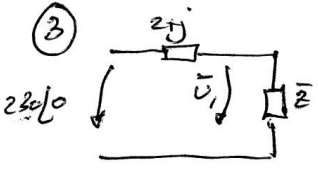
$$I_{R1} = \frac{E}{R1 + R2} = \frac{150}{75} = 2A$$



$$\bar{Z}_{L1} = j4\omega = j320 \cdot 10^{-3} \cdot 100\pi = j100'53\Omega$$

$$\bar{Z}_{L2} = jL2\omega = j160 \cdot 10^{-3} \cdot 100\pi = j50'26\Omega$$

$$\bar{Z}_{AB} = 100 + j100'53 + \left( \frac{1}{75} + \frac{1}{j50'26} \right)^{-1} = 182'92 \angle 47'65 \Omega$$



$$\bar{Z} = \left( \frac{1}{25} + \frac{1}{j15} \right)^{-1} = 12'86 \angle 59'03 \Omega$$

$$\bar{I} = \frac{230\angle 0}{2j + \bar{Z}} = 15'54 \angle -54'88 A \quad [U_1 = \bar{Z} \bar{I} = 199'88 \angle 46'4 V]$$

④  $230^2 = 125^2 + U_{x1}^2$   
 $\rightarrow U_{x1} = 193'06V$

⑤  $S_T = \sqrt{3000^2 + 1500^2} = 3354'10 = \sqrt{3} \cdot 390 I_L \rightarrow I_L = 4'96A$

$P_2 = 3000 + 3 \cdot 1 \cdot 4'96^2 = 3073'8W$   
 $Q_2 = 1500 + 3 \cdot 0'5 \cdot 4'96^2 = 1536'90VAR$   
 $\rightarrow S_2 = \sqrt{P_2^2 + Q_2^2} = 3436'61 = \sqrt{3} \cdot U \cdot 4'96$   
 $U = 600V$

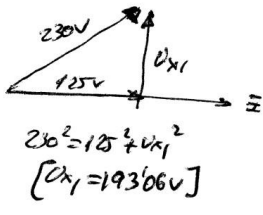
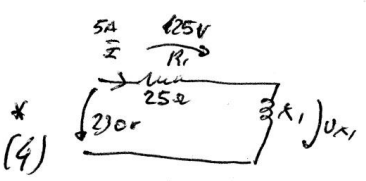
⑥  $P_G = 1500 + 5000 \cdot 0'8 + 500 + 100 = 6100W$   
 $S_G = \sqrt{3} \cdot 690 \cdot 6'7 = 8007'27VA$   
 $S_G = \sqrt{P_G^2 + Q_G^2} \rightarrow Q_G = 5187'1VAR$

⑦  $P_T = P_1 + P_2 = 4250W$   
 $Q_T = P_T \tan \phi = 4250 \cdot \tan(\arccos 0'9) = 2058'36VAR$   
 $Q_T = Q_1 + Q_2 + Q_C \rightarrow Q_2 = 2058'36 - 1000 + 1000 = 2058'37VAR$

⑧  $S = \sqrt{3} UI \rightarrow I_2 = \frac{\sqrt{2500^2 + 1250^2}}{\sqrt{3} \cdot 400} = 4'034A$   
 $\cos \phi = \frac{P}{S} = \frac{690}{400} = 1'725 \rightarrow P_{cu} = 3 R_{c2} I_2^2 = 3 \left( \frac{380 \cdot 10^{-3}}{1'725^2} \right) 4'034^2 = 6'23W$

⑨  $S = \sqrt{3} UI \rightarrow I = \frac{6000}{\sqrt{3} \cdot 690} = 5'02A \rightarrow \cos \phi = 0'8(\text{LND}) \rightarrow \phi = 36'86^\circ$   
 $\bar{E} = (15 + j0'9) \cdot 5'02 \angle 0 + \frac{690}{\sqrt{3}} \angle 36'86 = 400'28 \angle 31'10 V$

⑩  $I_a = \frac{400/\sqrt{3}}{\sqrt{1^2 + 2^2}} = 10'227A$   
 $\bar{I}_a = \bar{I}_1 + \bar{I}_2 = \left( \frac{1}{100} + \frac{j}{500} \right) \frac{400}{\sqrt{3}} \angle 0 + \frac{400}{\sqrt{3}} \angle 0$   
 $\frac{1 + j2}{22'55} \angle 11'30 + \frac{1 + j2}{102'85} \angle -63'43$   
 $110'94 \angle -52'12 A$



$230^2 = 125^2 + U_{x1}^2$   
 $[U_{x1} = 193'06V]$