
RECITATION 04

Problem 01

Given the symmetrical components of unbalanced three phase with:

$$I_A^{(0)} = 0.53 \angle -57.9^\circ$$

$$I_A^{(1)} = 1.27 \angle 72.1^\circ$$

$$I_A^{(2)} = 0.64 \angle 44.1^\circ$$

-Obtain the original unbalanced phasors (I_A , I_B , I_C), and draw the phasor diagram of all parameters.

Problem 02

Obtain the symmetrical components for the following set of unbalanced currents

$$I_A = 1.56 \angle 46.8^\circ$$

$$I_B = 1.32 \angle -67^\circ$$

$$I_C = 1.56 \angle -121^\circ$$

Problem 03

The line-to-ground voltages on the high voltage side of a step-up transformer are 100 kV, 33 kV and 38 kV on phases a, b and c respectively. The voltage of phase a lead that of phase b by 100° and lags that of phase c by 176.5° .

Determine analytically the symmetrical components of voltage.

Problem 04:

The line currents in amperes in phases a, b and c respectively are $500 + j150$, $100 - j600$ and $-300 + j600$ referred to the same reference vector. Find the symmetrical component of currents.

Problem 05:

One conductor of a three-phase line is open. The current flowing to the Δ -connected load through line a is 10A. With the current in line a as reference and assuming that line c is open, find the symmetrical components of the line currents