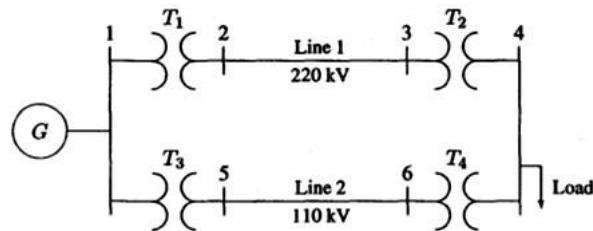


Experiment 7

Aim: To develop and study Simulink model of the power system networks for the given oneline diagram.

Circuit Diagram:



The reactance data of the elements are given below

| | | | |
|-----------------|--------|---------------------|------------------|
| Generator No. 1 | 90 MVA | 22 kV | |
| Transformer T1 | 50 MVA | (3 phase) 22/220 kV | $X=0.1$ p.u. |
| Transformer T2 | 40 MVA | (3 phase) 220/11 kV | $X = 0.06$ p.u. |
| Transformer T3 | 40 MVA | (3 phase) 22/110 kV | $X = 0.064$ p.u. |
| Transformer T4 | 40 MVA | (3 phase) 110/11 kV | $X = 0.08$ p.u. |

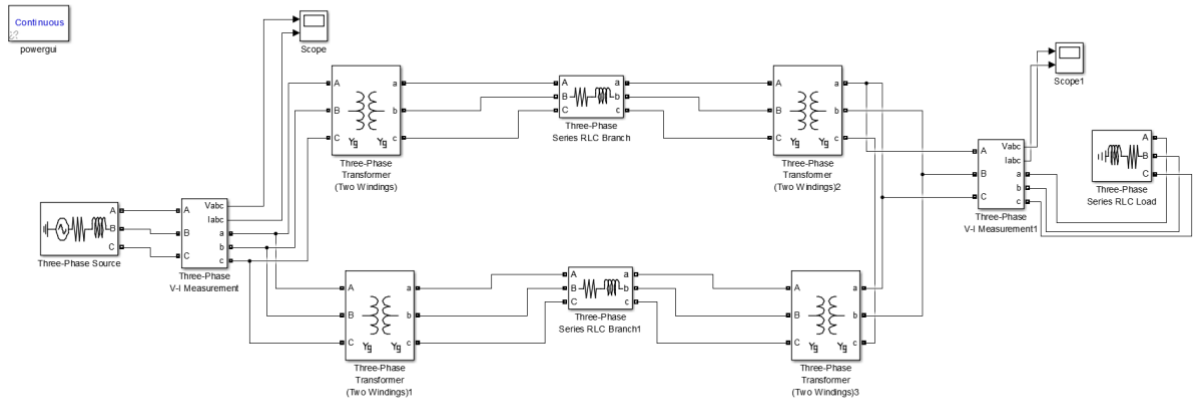
The three-phase load at bus 4 absorbs 57 MVA, 0.6 power factor lagging at 10.45 kV. Line 1 and line 2 have reactances of 48.4 and 65.43 Ω , respectively **Theory:**

A one-line diagram of a power system shows the main connections and arrangements of components. Any particular component may or may not be shown depending on the information required in a system. A simplified diagram of an electric system is called a singleline or one-line diagram in which per phase equivalent of the three phase lines is shown omitting the neutral.

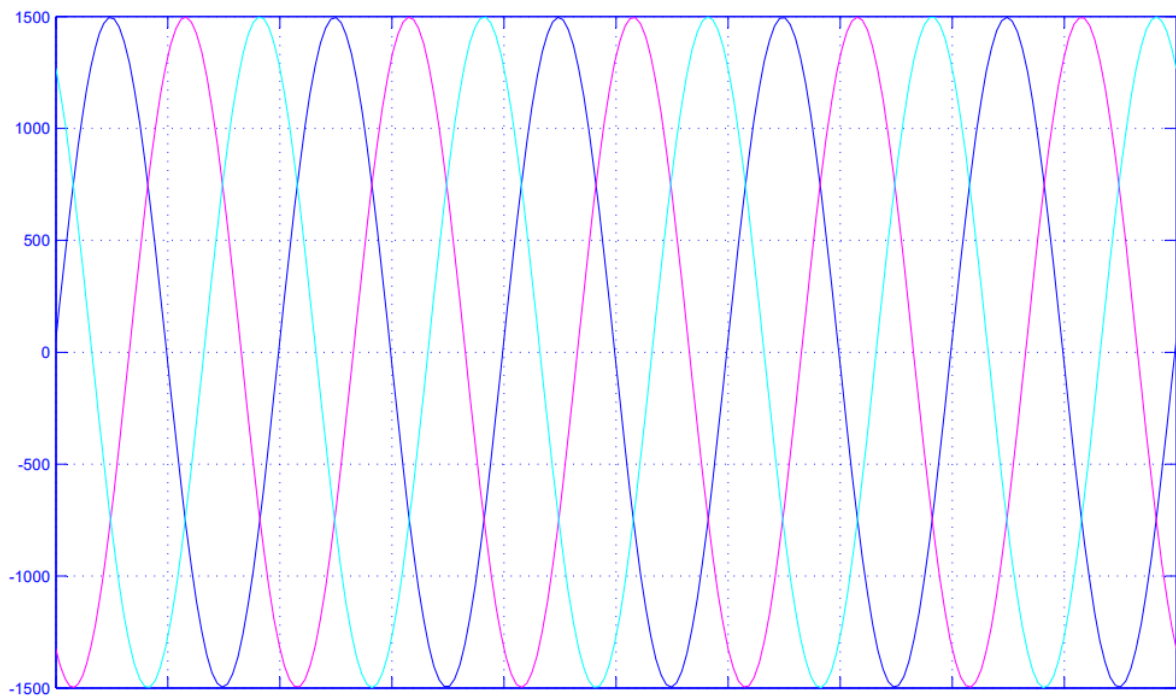
Procedure:

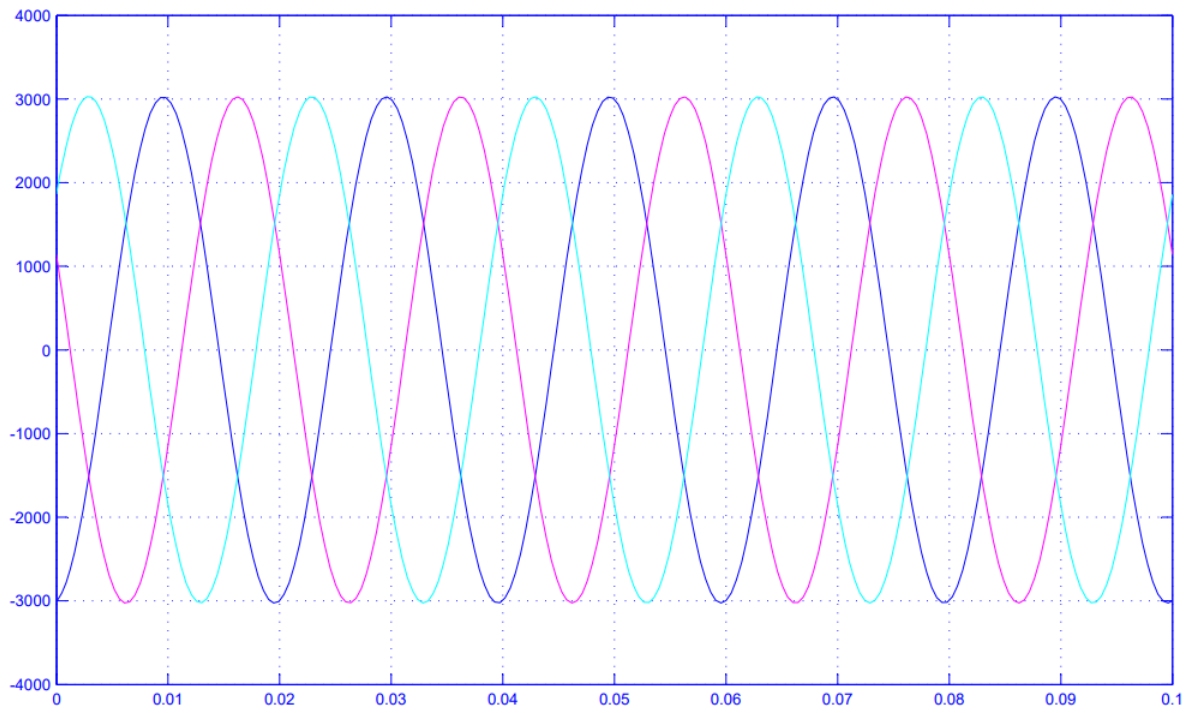
Develop a Simulink model of the given one-line diagram of the power network.

Simulink Model:



Waveform:





Conclusion: