EEE- 601
POWER SYSTEM ANALYSIS
Unit-1

Power system network

GS 11kV

11kV/130kV

130kV/33kV

33kV/11kV

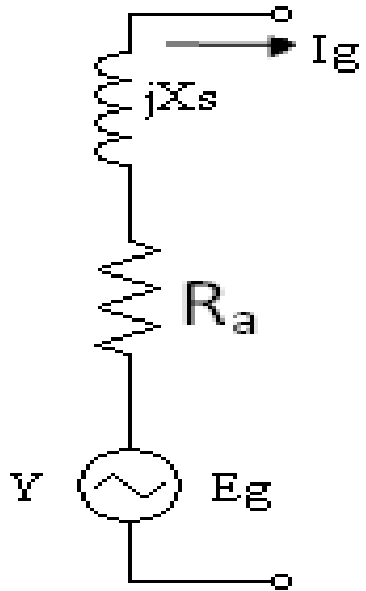11kV/415V or 230V

Loads
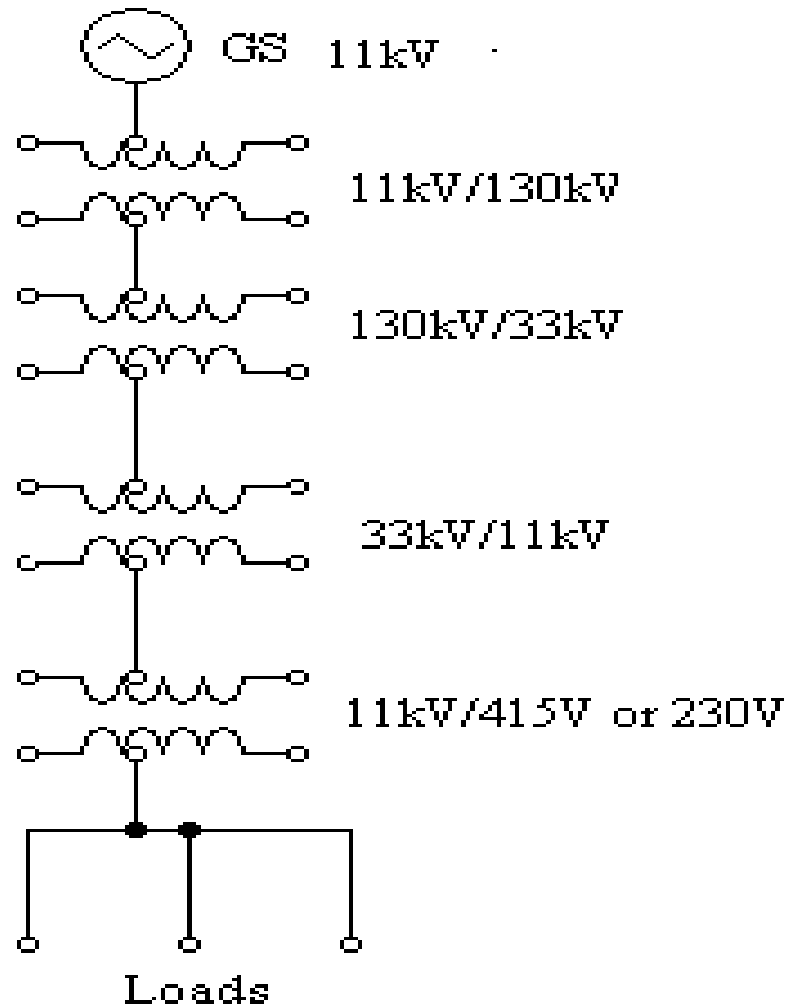
ONE LINE DIAGRAM

It is a diagrammatic representation of a power system in which the components are represented by their symbols.
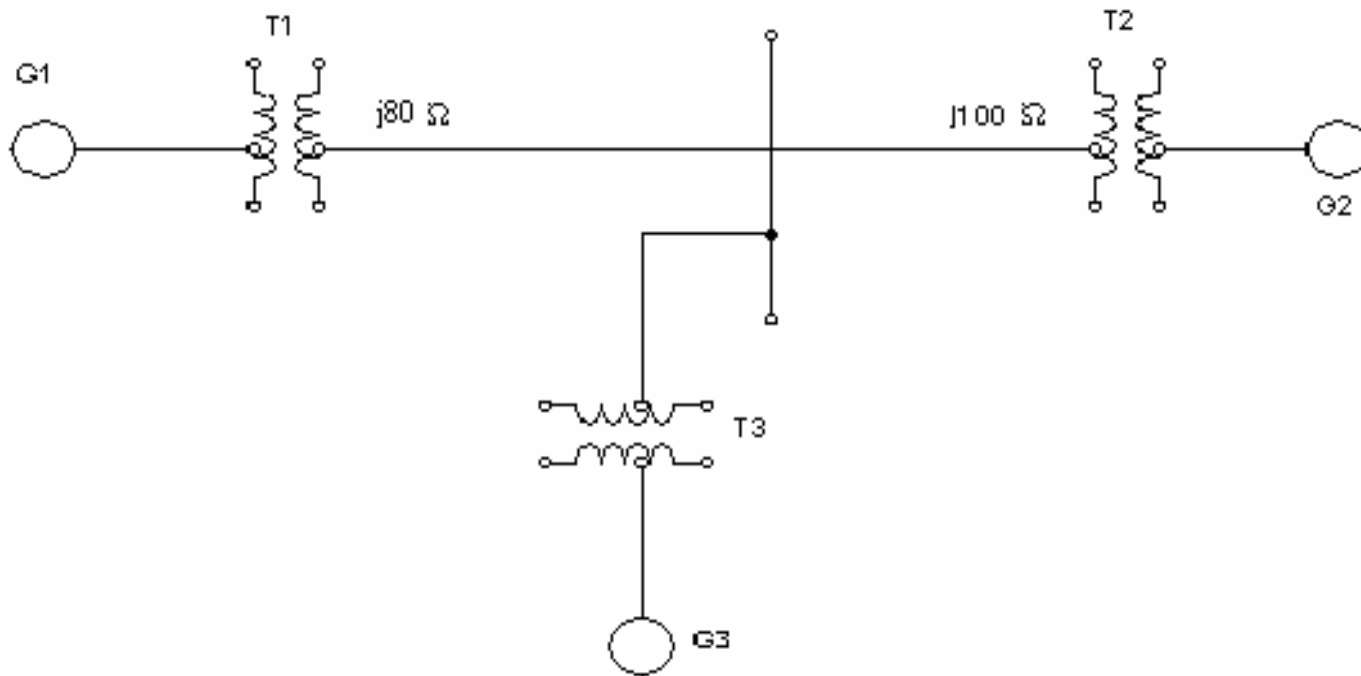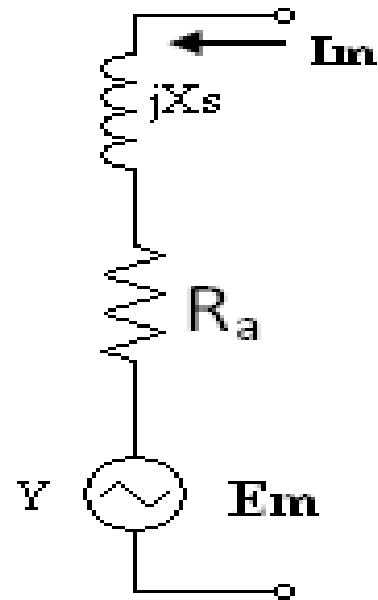
COMPONENTS OF A POWER SYSTEM

1. Alternator

2. Power transformer

3. Transmission lines

4. Substation transformer

5. Distribution transformer

6. Loads

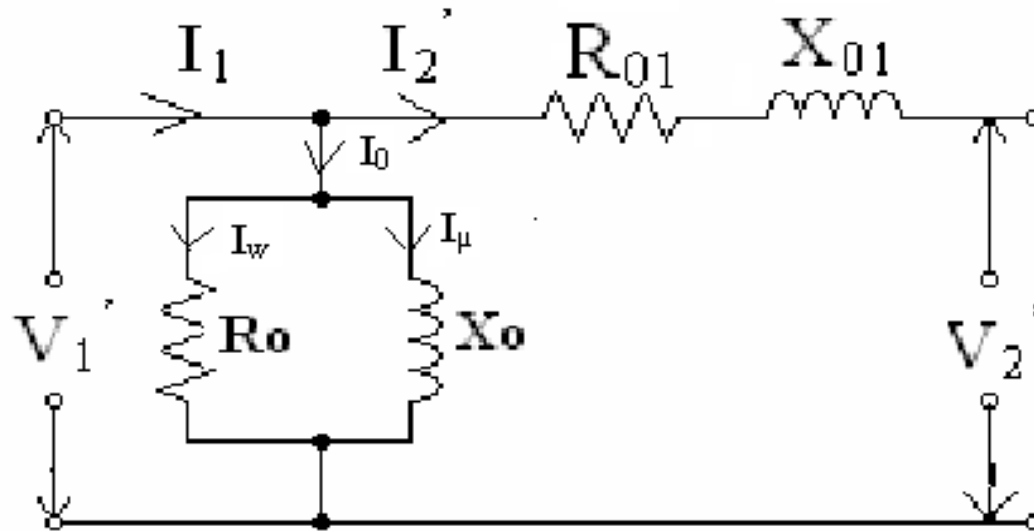# MODELLING OF GENERATOR AND SYNCHRONOUS MOTOR

1Φ equivalent circuit of generator

1Φ equivalent circuit of synchronous motor
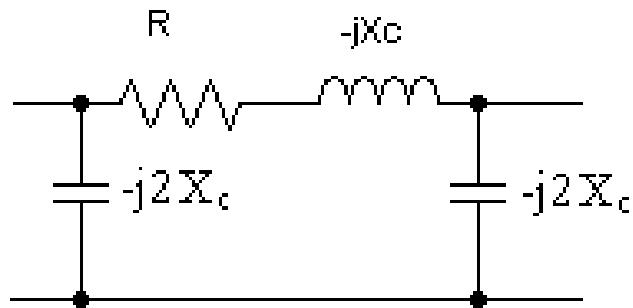
MODELLING OF TRANSFORMER

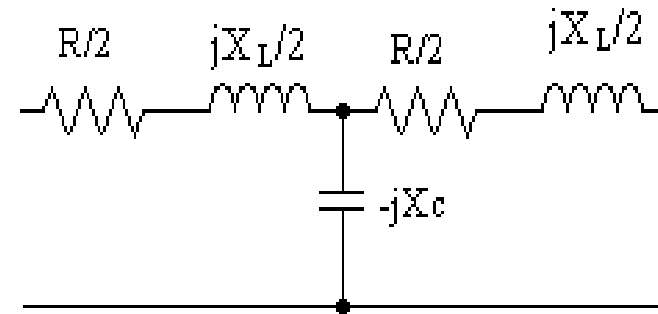$$K = \frac{E_2}{E_1} = \frac{N_2}{N_1} = \frac{I_1}{I_2}$$

$$R_{01} = R_1 + R_2{}' = R_1 + \frac{R_2}{K^2} \quad \text{=Equivalent resistance referred to 1^{o}}$$

$$X_{01} = X_1 + X_2{}' = X_1 + \frac{X_2}{K^2} \quad \text{=Equivalent reactance referred to 1^{o}}$$

MODELLING OF TRANSMISSION LINE

Π type

T type

Thank you