SNS COLLEGE OF TECHNOLOGY

(An Autonomous Institution)

COIMBATORE-35

Accredited by NBA-AICTE and Accredited by NAAC – UGC with A++ Grade

Approved by AICTE, New Delhi & Affiliated to Anna University, Chennai

19EET103 / ELECTRIC CIRCUITS AND ELECTRON DEVICES

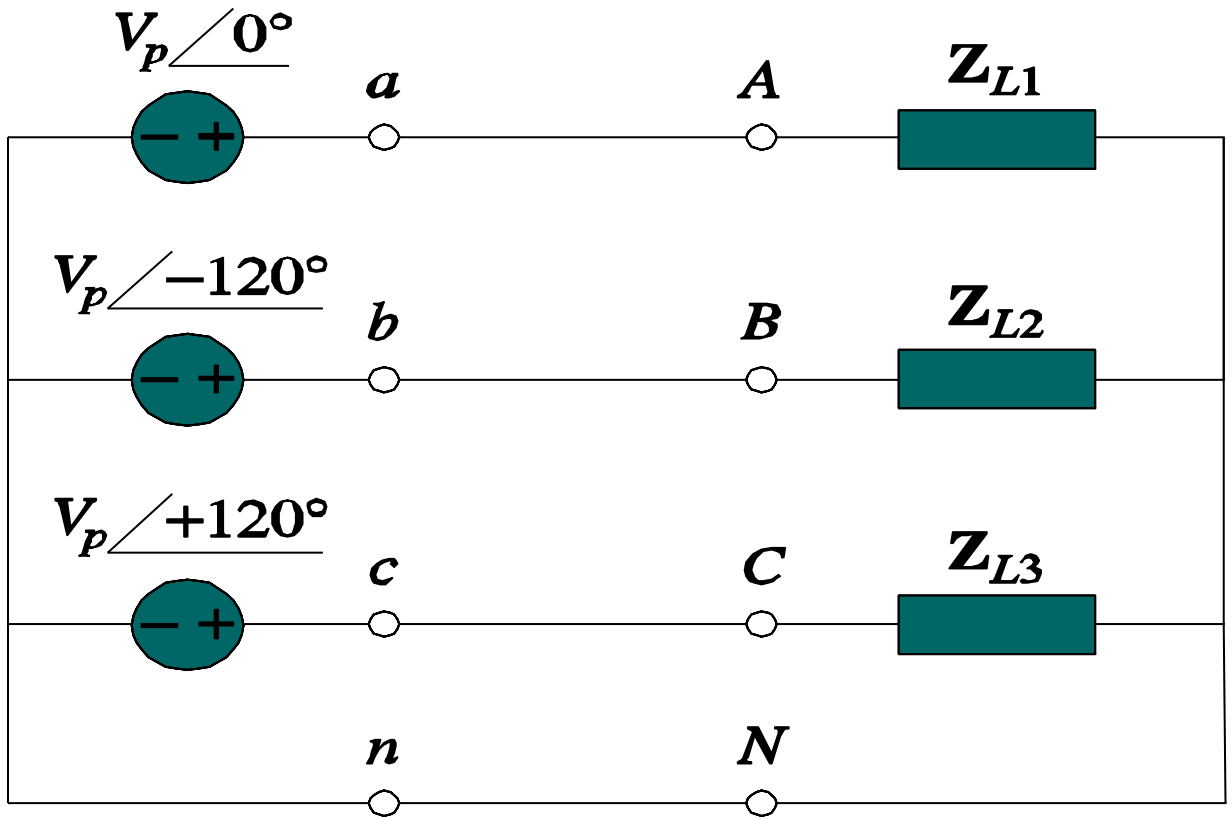
UNIT 2- AC CIRCUITS

THREE PHASE CIRCUIT

Objectives

- Explain the differences between single-phase, two-phase and three-phase.
- Compute and define the Balanced Three-Phase voltages.
- Determine the phase and line voltages/currents for Three-Phase systems.

THREE PHASE FOUR WIRE



IMPORTANCE OF THREE PHASE SYSTEM

- All electric power is generated and distributed in three phase.
  - One phase, two phase, or more than three phase input can be taken from three phase system rather than generated independently.
  - Melting purposes need 48 phases supply.

IMPORTANCE OF THREE PHASE SYSTEM

- Uniform power transmission and less vibration of three phase machines.
  - The instantaneous power in a 3ϕ system can be constant (not pulsating).
  - High power motors prefer a steady torque especially one created by a rotating magnetic field.

IMPORTANCE OF THREE PHASE SYSTEM

- Three phase system is more economical than the single phase.
  - The amount of wire required for a three phase system is less than required for an equivalent single phase system.
  - Conductor: Copper, Aluminum, etc

Advantages

- The amount of conducting material required to transfer a given amount of power is minimum in a three-phase system.
- The instantaneous power in a three-phase system never falls to zero resulting in smoother and better operating characteristics of the load.
- Three-phase supply is required by three-phase induction motors which are widely used in industry because of their ruggedness, longer life, higher torque, low initial and maintenance costs.

…THANK YOU