(2) Per unit -

The numerical per unit (PU) value of any quantity is defined as the ratio of its actual value to another arbitrarily chosen value of quantity of the same dimensions, assumed as the base or reference.

$$\text{Per unit value} = \frac{\text{Actual value of quantity}}{\text{Base value of quantity}}$$

Base current = $\frac{\text{Base volt amp (in amp)}}{\text{Base voltage}}$

Base impedence = $\frac{\text{Base voltage (in ohm)}}{\text{Base current}}$

pu voltage = $\frac{\text{Actual voltage (pu)}}{\text{Base voltage}}$

pu current = $\frac{\text{Actual current (pu)}}{\text{Base current}}$

pu impedance = $\frac{\text{Actual impedance (pu)}}{\text{Base impedance}}$

Advantage- It makes the calculation of impedance of various power system components very easy.

Limitation - For transmission lines, its value of impedance & admittance in physical units (e.g, ohm/km) are of same magnitude regardless of voltage level or MVA rating.

- Equivalent ckt of the components are modified, making them somewhat more abstract.