

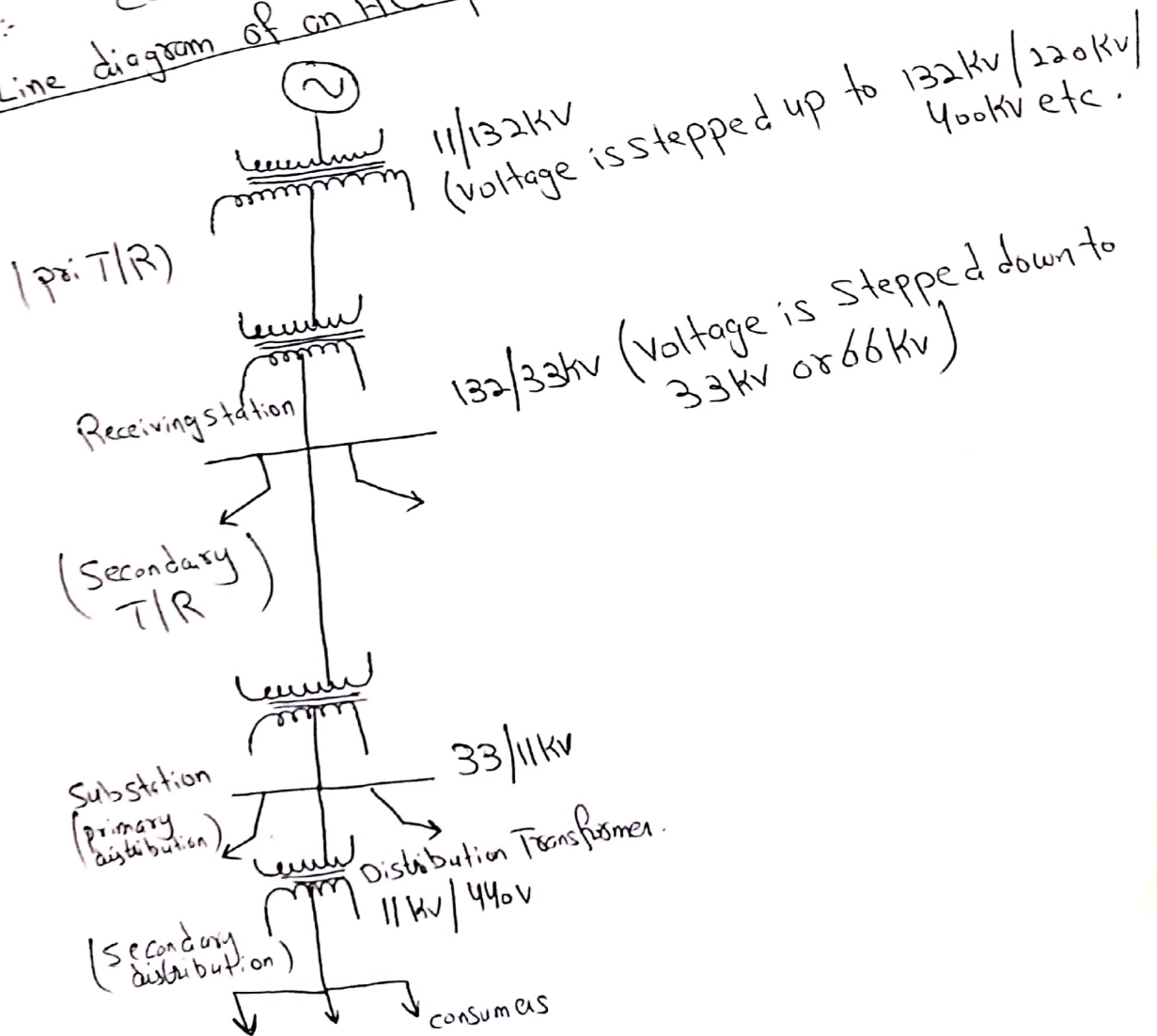
# Electric Power System:-

"An electric power system is a network of electrical components comprising of generation, Transmission, distribution and consumption of electrical Power."

From the above definition, it is clear that there are four main parts of power system:-

- a):- Generation System
- b):- Transmission System
- c):- Distribution System
- d):- Consumers (Load).

## Single Line diagram of an AC power system:-



### 1): Power Generation:- (Generation System)

"which means generation of electricity at electrical power plants". It can include various types of power plants like thermal power plants, hydropower plants, nuclear power plants etc.

### 2): Power Transmission:- (Transmission System)

Electric Power Transmission are the means of transmitting power from a generating source to various load centers (i.e. where the power is being used).

### 3): Distribution System:-

"That part of power system which distributes electric power for local use is known as distribution system."

→ In general, distribution system is that part of power system which distributes power to the consumer for utilization.

→ The distribution system is the electrical system between the sub station and the consumer's meter.

A distribution system generally consists of:-

- a): Feeders
- b): Distributors
- c): Service mains

"a) Feeder:-

A feeder is a conductor which (or localised generating station) to the area where power is to be distributed. connects the substation from the feeder the same throughout. design of a feeder is

→ Generally no toppings are taken from the feeder

→ So that current in it remains the same throughout.

→ The main consideration in the design of a feeder is the current carrying capacity.

"b) Distributor:-

"A distributor is a conductor from which tapping is taken for supply to the consumers".

→ In the below fig, AB, BC, CD and DA are the distributors.

→ The current through a distributor is not constant because tapping is taken at various places along its length.

→ While designing a distributor, voltage drop along its length is the main consideration since the limit of consumer's terminals is  $\pm 6\%$  of the rated value of the

"c) Service mains:-

"A service main is generally a small cable which connects the distributor to the consumer's terminals."

