

Q No 3
ANS

The transmission and distribution system are divided in different categories.

- * Primary distribution line
- * Secondary distribution line
- * Primary transmission line
- * Secondary transmission line.

Transmission System

A transmission line is used for the transmission of electrical power from generating substation to the various distribution units. It transmits the wave of voltage and current from one end to another. The transmission line is made up of a conductor having a uniform cross-section along the line.

Primary distribution!

The power is distributed at 33kV to main load centres inside a city through either primary distribution cables or lines then further stepped down to 11kV at primary distribution substation.

Secondary distribution!

Close to consumers the voltage stepped down to 415 and 240V at local secondary distribution and finally delivered to domestic, commercial and small-scale industrial customers through either wire or underground cables.

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Primary transmission & Secondary transmission.

* Primary transmission lines carries 220-765KV where the voltage is stepped up from 11 KV supplied by generating station to 220 KV using transformers.

Secondary transmission

From the primary transmission substation the power is transmitted at 66 KV or 33 KV through sub-transmission line to different load centres. The subtransmission lines terminate at the secondary transmission substation to step down the voltage from 66 KV to 33 KV

Conductor!

Conductors are those material which have that allows electric current to pass through it easily

Example of Conductor!

- copper
- aluminum
- gold

Insulator!

Any material that does not allow electric current to pass through it

- Like the protective coating on wires.

Example of Insulator!

Plastic
Rubber
Glass

Q NO 1

Ans

High voltage system is used through out in the world!

There are many kind of high voltage system are used in the over all world, is it that the \rightarrow 200KV the highest voltage proposed in power transmission in Kazakhstan, it was the first commercial power line in the world. and china highest voltage used in 800KV which is also developing a 1,100KV system.

various of high voltage used in PAK!

Before Pakistan first 765KV high voltage transmission line are completed by the end of december in this year Lahore by working in Chinese company under the auspices of the China Pakistan Economic Corridor and the East Point it will be attached to NTDC'S

current 500KV system and grip station will also established for 765KV/500KV double current line.

* The 500 KV double current Post Qasim transmission line, which is creating and power supply cuts the to consumer's

* 220KV * 66KV

* 132KV * 33KV

The Stage of High Voltage Transmission Line.

- * Low voltage Below 1000V in AC system
- * Medium voltage 1000KV to 69KV in AC system
- * HV Below 100KV in AC system in the secondary transmission
- * EHV 230 KV to 800KV are in AC & DC are a primary transmission line.
- * UHV over 1000KV are the HVDC is preferable.

QNO 2
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Introduction!

The cable laid above the ground for transmission purpose is known as overhead transmission lines while the cable laid below the ground (3-5 feet) for transmission purpose is known as underground transmission lines. These lines are used for electric power transportation from one place to the other.

Benefits or Advantages of underground cable.

- They have reduced visual impact due to being below the ground.
- These lines have reduced EMFs (Electrical and magnetic fields) and hence eliminates potential health issues.
- It is lesser transmission losses.
- It is less affected by extreme weather conditions and hence increases reliability of supply of power.

Draw back or Disadvantages of underground transmission!

- cost of underground cable (e.g HVDC) are three times higher compare to overhead lines (e.g 400kV)
- Moreover laying or burying compare to overhead lines.
- It is difficult to find and repair the wire breaks in case of failure of system. Moreover it takes days or weeks to overcome the problem.
- It is difficult to maintain underground system compare to overhead due to underground cabling

* Unlike overhead lines which can be upgraded to carry more power, underground lines can not be upgraded to increase the capacity.

* Underground cables are subjected to damage due to ground movement due to earth quake.

Advantage of over head transmission!

- * It is easy to repair and maintain.
- * They are not restricted by landscape i.e they can be easily installed over rivers or motorway or hilly regions.
- * Chances of electrocution are less as they run high above the ground.
- * Cheaper to setup compare to underground transmission.

Disadvantage of overhead transmission!

- * These lines visually pollute the areas where they are installed.
- * These lines suffer from problems such as terrorism, vandalism and lightning etc
- * Some times these lines come in the way of birds and low flying aircraft or drone which can be dangerous.

Conclusion!

with appropriate technology at appropriate places, Advantages of both underground transmission lines and overhead transmission line can be leveraged for the benefits of a mankind.