AC Class 12 Topics

Topic Tree for "Alternating Current" - Class 12 - NCERT

1. **Introduction to Alternating Current (AC)**
    - Definition and Basic Concepts
    - Difference between AC and DC
    - Applications of AC
2. **Mathematical Representation of AC**
    - Sinusoidal Waveform
    - Peak Value, RMS Value, Average Value
    - Phase and Phase Difference
3. **AC Circuit Components**
    - Resistors in AC Circuits
    - Inductors in AC Circuits
    - Capacitors in AC Circuits
4. **Impedance and Reactance**
    - Concept of Impedance
    - Inductive Reactance
    - Capacitive Reactance
    - Impedance in Series and Parallel Circuits
5. **Phasors and Phasor Diagrams**
    - Representation of AC Quantities as Phasors
    - Phasor Diagrams for Resistor, Inductor, and Capacitor
    - Phasor Addition
6. **AC Voltage Applied to Series LCR Circuit**
    - Analysis of Series LCR Circuit
    - Resonance in Series LCR Circuit
    - Resonant Frequency, Bandwidth, and Quality Factor
7. **Power in AC Circuits**
    - Instantaneous Power
    - Average Power
    - Power Factor
    - Power in Resistor, Inductor, and Capacitor
8. **Transformers**
    - Principle of Operation
    - Construction and Working
    - Efficiency and Losses
    - Applications of Transformers
9. **Alternators and Generators**
    - Basic Principle and Construction
    - Working of an Alternator
    - Types and Applications
10. **AC in Practice**

- Polyphase Systems
- Three-phase AC Circuits
- Advantages of Polyphase Systems