

Table of Contents

D.C. Generators

- Construction and principle of operation
- EMF equation
- Types of DC generators
- Characteristics of DC generators
- Applications of DC generators

2. D.C. Motors

- Principle of operation
- Back EMF
- Torque equation
- Types of DC motors
- Characteristics of DC motors
- Starting of DC motors
- Speed control
- Applications of DC motors

3. Single-Phase Transformers

- Construction and working principle
- EMF equation
- Equivalent circuit
- Transformer losses
- Open-circuit and short-circuit tests
- Voltage regulation
- Efficiency
- Applications of transformers

4. Three-Phase Induction Motors

- Construction and operating principle
- Production of rotating magnetic field
- Slip
- Torque–slip characteristics
- Starting methods
- Speed control
- Applications of three-phase induction motors

5. Three-Phase Alternators

- Construction and principle of operation
- EMF equation
- Armature reaction
- Voltage regulation
- Efficiency
- Characteristics of alternators

6. Single-Phase Induction Motors

- Principle of operation
- Double revolving field theory
- Types of single-phase induction motors

- Starting methods
- Characteristics
- Applications
- 7. **Special Electrical Machines**
 - **AC and DC Tachometers**
 - **Servomotors**
 - **Synchros**
 - **Stepper Motors**
 - Principles of operation and applications
- 8. **Electrical Measuring Instruments**
 - Basic principles of electrical measurements
 - **Moving-Coil Instruments**
 - **Moving-Iron Instruments**
 - Operating principles
 - Construction
 - Characteristics
 - Applications