

# PHYSICS

1.	Force and motion
2.	Work and energy
3.	Rotational and circular motion
4.	Waves
5.	Thermodynamics
6.	Electrostatics
7.	Current electricity
8.	Electromagnetism
9.	Electromagnetic induction
10.	Electronics
11.	Nuclear physics

## TOPICS

### **1. Force and motion**

- a. Displacement
- b. Velocity
- c. Acceleration
- d. Newton's laws of motion
- e. Linear Momentum
- f. Law of conservation of momentum
- g. Collision
- h. Projectile motion

### **2. Work and energy**

- a. Work
- b. Energy
- c. Kinetic energy
- d. Potential energy
- e. Gravitational potential energy
- f. Power

### **3. Rotational and circular motion**

- a. Angular displacement
- b. Revolution
- c. Degree
- d. Radian
- e. Angular velocity
- f. Relation between linear and angular displacements
- g. Centripetal force

### **4. Waves**

- a. Crest
- b. Trough
- c. Amplitude
- d. Wavelength
- e. Time period and frequency
- f. Transverse waves
- g. Longitudinal waves
- h. Speed of sound in air
- i. Doppler effect
- j. Simple harmonic motion (SHM)
- k. Characteristics of simple harmonic motion
- l. Amplitude
- m. Vibration
- n. Time period
- o. Frequency

## **5. Thermodynamics**

- a. First law of thermodynamics
- b. Specific heat and Molar specific heat / specific heat capacity

## **6. Electrostatics**

- a. Coulomb's law
- b. Electric field and its intensity
- c. Electric potential
- d. Capacitor
- e. Capacitance
- f. Capacitance of a capacitor and its unit
- g. Energy stored in a capacitor
- h. Charging and discharging a capacitor

## **7. Current Electricity**

- a. Ohm's Law
- b. Electrical resistance
- c. Effect of temperature on resistance
- d. Electric power
- e. Units of electric power
- f. Kilowatt-hours

## **8. Electromagnetism**

- a. Magnetic field
- b. Magnetic Flux
- c. Magnetic flux density

## **9. Electromagnetic induction**

- a. Electromagnetic induction
- b. Faraday's Law
- c. Lenz's Law
- d. Generating electricity - Alternating Current Generator
- e. Transformers

## **10. Electronics**

- a. Rectification

## **11. Nuclear Physics**

- a. Nuclear decay / the law of radioactive decay
- b. Half Life and rate of decay
- c. Biological effects of radiation
- d. Biological and medical uses of radiation