

# JAMB Topics for Physics

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## Broad Topic

## Sub Topics

### Measurements and Units

- Length
- Mass
- Time
- Fundamental quantities

### Scalars and Vectors

- Definition
- Examples
- Vector resolution

### Motion

- Types
- Causes
- Linear motion
- Projectiles
- Newton's laws

### Gravitational Field

- Newton's law
- Potentials
- Escape velocity

### Equilibrium of Forces

- Coplanar forces
- Moments
- Rigid body equilibrium

### Work, Energy and Power

- Work
- Forms of energy
- Conservation
- Force-distance curve

### Friction

- Static/dynamic
- Limiting friction
- Advantages/disadvantages

### Simple Machines

- Definitions

## Broad Topic

## Sub Topics

- Types
- Mechanical advantage

## Elasticity

- Hooke's law
- Young's modulus
- Spring balance

## Pressure

- Atmospheric and liquid pressure
- Applications

## Liquids at Rest

- Density
- Relative density
- Upthrust
- Archimedes' principle

## Temperature and Its Measurement

- Concepts
- Thermometers
- Scales

## Thermal Expansion

- Solids and liquids
- Real/apparent expansion

## Gas Laws

- Boyle's law
- Charles's law
- Ideal gas equation

## Quantity of Heat

- Heat capacity
- Specific heat
- Determination methods

## Change of State

- Latent heat
- Boiling
- Melting
- Applications

## Vapours

- Saturated/unsaturated
- Humidity
- Dew

## Broad Topic

## Sub Topics

- S.V.P

### Structure of Matter & Kinetic Theory

- Atoms
- Brownian motion
- Kinetic theory assumptions

### Heat Transfer

- Conduction
- Convection
- Radiation
- Thermos flask

### Waves

- Wave motion
- Types
- Progressive wave equation

### Propagation of Sound Waves

- Need for material medium
- Speed of sound
- Reflection (echoes)
- Disadvantages of echoes

### Characteristics of Sound Waves

- Noise vs musical notes
- Pitch/loudness
- Overtones
- Resonance
- Frequency formula

### Light Energy

- Sources of light
- Propagation
- Pinhole camera

### Reflection of Light

- Laws
- Mirrors
- Ray diagrams
- Mirror formula
- Magnification

### Refraction of Light

- Refraction laws
- Snell's law

## Broad Topic

## Sub Topics

- Refractive index
- Total internal reflection

### Optical Instruments

- Microscopes
- Telescopes
- Cameras
- Lens power
- Angular magnification

### Dispersion of Light & Colours

- Triangular prism
- Spectrum
- Colour mixing
- Colour filters
- Rainbow

### Electromagnetic Spectrum

- Types of radiation
- Sources
- Uses

### Electrostatics

- Charges
- Electroscope
- Coulomb's law
- Electric field
- Lightning

### Capacitors

- Types
- Functions
- Formulas
- Energy storage

### Electric Cells

- Types of cells (e.g. Leclanché, lead-acid)
- Defects
- Efficiency
- Arrangement

### Current Electricity

- EMF
- P.d.
- Ohm's law

## Broad Topic

## Sub Topics

- Resistance
- Electrical networks

### Electrical Energy and Power

- Power concepts
- Transmission
- Heating effects
- Fuses

### Magnets & Magnetic Fields

- Magnetic materials
- Magnetic fields
- Magnetism of current-carrying conductors

### Force on a Current-Carrying Conductor

- Fleming's left rule
- DC motor
- Galvanometers
- Electromagnetic force

### Electromagnetic Induction

- Faraday's and Lenz's laws
- Induced EMF
- Applications

### Simple A.C. Circuits

- A.C. current/voltage
- R-L-C circuits
- Impedance
- Resonance

### Conduction of Electricity

- Electrolysis (liquids)
- Discharge through gases

### Elementary Modern Physics

- Atom models
- Spectra
- Emission
- Einstein's equation
- Radioactivity
- Fission/fusion
- Wave-particle duality

### Introductory Electronics

- Conductors/semiconductors

## Broad Topic

## Sub Topics

- Diodes
- Transistors
- Intrinsic vs extrinsic semiconductors

Total Topics: 40

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