

## **Physics**

Heat

Black body radiations

Kinetic interpretation of temperature

Measurement of temperature

Mechanical equivalent of Heat

Modes of heat transfer

Searle's method and Lee's method for thermal conductivity

Stefan's law

Temperature scales

Thermal expansion

Thermoelectric thermometers

Wien's law

Acoustics

Wave motion

Velocity of sound

Doppler Effect

Intensity of sound waves

Reverberation

Acoustics of buildings

Production and detection of ultrasonic waves

## **Optics**

Chromatic aberration

Diffraction

Huygens principle

Lens makers formula

Magnifying power

Optical fibre

Optical instruments

Polarization of light

Refraction

Resolving power

Total internal reflection

Young's double slit experiment

Electricity and Magnetism

Ammeter

Applications of Kirchhoff's laws

Current Electricity

Dielectrics

Electric dipole, Electric field

Electric potential

Gauss's law

Potentiometer

Slide Wire Bridge

Voltmeter

## **Electromagnetism**

Biot-Savart law  
Electromagnetic induction  
Lorentz force  
Magnetic effects of current  
Moving coil galvanometers  
Mutual and self-inductance  
Modern Physics  
Bohr's model and hydrogen spectra  
Photoelectric effect  
Matter waves

## **Mathematics**

Algebra  
Quadratic Equations  
Progression  
Arithmetic progression (AP)  
Geometric progression (GP)  
Binomial Theorem  
Calculus  
Differential Calculus  
Integral Calculus  
Series of natural numbers  
Partial fractions

## **Trigonometry**

Multiple and sub-multiple angles  
Ratios of some standard angles  
Solution of triangles  
Trigonometric Ratios  
Trigonometric Relations

## **Co-ordinate Geometry**

Cartesian Co-ordinates  
Intersection of two straight lines  
Angles between two lines  
Distance formulae  
Equation of a circle

## **Chemistry**

Structure and bonding  
Chemical Equilibrium  
Oxidation and Reduction reactions  
Faraday's laws of Electrolysis  
Electrochemistry  
Redox Chemistry

Colloids and Water  
Organic Chemistry

### **English**

Idioms  
Phrases  
Sentence Correction  
Tenses  
Parts of speech  
Synonyms  
Antonyms  
Voices

### **Electrical and Electronics Engineering (EEE)**

Three Phase Induction Motor  
Capacitor  
Torque-slip characteristics  
Methods of producing starting torque  
Shaded pole and reluctance motors  
Single Phase Induction Motor  
Slip, torque & their various relations  
Torque/Speed characteristics

### **Measuring Instruments**

Wattmeter  
Moving iron instruments  
Deflecting, controlling and damping torques  
Moving coil instruments  
Multi-meter  
Indicating, integrating and recording instruments  
Sources of errors extension range  
Dynamometer type  
Energy meters-single phase and three phase  
Maximum demand indicators  
Earth tester  
Power factor meter  
Poly Phase System  
Speed control of D.C. motors  
Production of rotating magnetic field in electrical machines  
Shunt series and compound types  
Characteristics of D.C. machines  
Equivalent circuits  
Testing  
Losses  
Parallel operation  
Regulation  
Efficiency  
Maintenance

## **Transformer**

Single phase

Three phase

Phase diagrams

AC Series Motor, Universal Motor

V curves

Speed/frequency relation

EMF equation

Regulation

Winding coefficients

Synchronous machines

Synchronous impedance concept

Parallel operation

Transmission System

Inductance

Capacitance

Selection of voltage

Electrical features of transmission line

Resistance

Conventional sources of energy

Comparison of A.C. and D.C. systems

Distribution system

L.T distribution system

H.T distribution system

Comparison of overhead and underground distribution system

Non-conventional sources of energy

Switchgear system

Types of power stations

Different types of power stations

Concept of regional and national grid

Circuit breakers

Electronic Instruments

Measurement of capacitance

CRO

Electronic multimeter

Digital meters

VTVM

Analog multimeter

Measurement of inductance