

UNIT I: Properties of matter:

Elasticity–Bending of beams – Expression for bending moment –Expression for Young's modulus (uniform and non–uniform bending) – experimental determination of Young's modulus using pin and microscope method (uniform and non–uniform bending) –Torsion of a body – expression for couple per unit twist – determination of rigidity modulus of a wire by torsional pendulum– Static torsion method with scale and telescope – drop weight method of determining surface tension and interfacial surface tension

UNIT II SOUND:

Laws of transverse vibrations of strings–Sonometer – verification of laws of transverse vibrations of strings–determination of AC frequency

Ultrasonics:

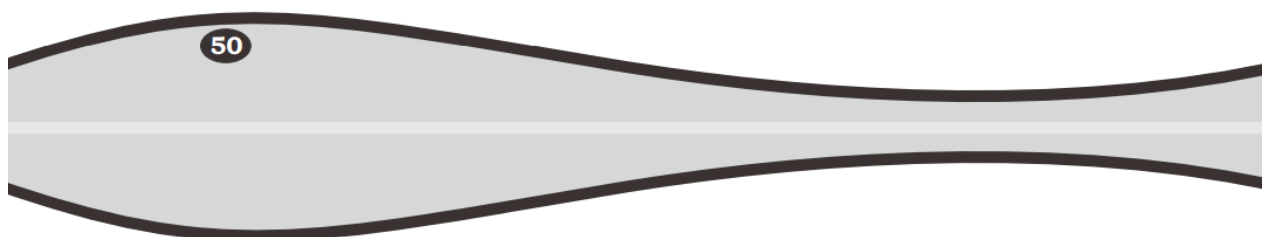
Introduction to ultrasonics – piezo electric effect–production by piezo electric method – properties – applications– Acoustics: Acoustics of buildings – reverberation time – derivation of Sabine's formula – determination of absorption coefficient.

UNIT III Heat:

Vander Waal's equation of state–critical constants–determination of critical constants–Joule–Kelvin effect–Porous plug experiment–theory of porous plug experiment–temperature inversion–Liquefaction of gases– liquefaction of Hydrogen–Thermal conductivity–coefficient of thermal conductivity– determination of coefficient of thermal conductivity of bad conductor by Lee's disc method.

UNIT IV Gravitation:

Newton's law of gravitation – inertial mass– gravitational mass–Kepler's laws of planetary motion–deduction of newton's law of gravitation from Kepler'slaws–determination of G by Boy's experiment–variation of g with altitude– variation of g with depth

UNIT V Electricity:

PERIYAR UNIVERSITY

Electric circuit–open circuit–closed circuit–switches–types of switches–fuses–types of fuses–rewirable type fuse–cartridge fuse–circuit breaker–merits of circuit breaker – Carey foster's bridge–theory – measurement of resistance–potentiometer–principle and theory determination of internal resistance of a cell–calibration of low range voltmeter.

BOOKS FOR STUDY AND REFERENCE

1. R. Murugesan, Allied Physics I & II, S. Chand & Co, New Delhi (2006)
2. D.S. Mathur, Elements of properties of matter, S.Chand & Company Ltd., New Delhi (2010).
3. R. Murugesan, Properties of matter and acoustics, S. Chand & Co, New Delhi (2012)
4. Brijlal & Dr.N.Subramanyam and P.S. Hemne, Heat and Thermodynamics, S. Chand & Co, New Delhi , (2004)
5. R. Murugesan, Electricity, S. Chand & Co, New Delhi (2010)