

PH201 Physics-II (3-1-0) Credits:4

Theory: 100

Sessional:50

Time: 3 hours

Optics

Diffraction —Single slit, transmission grating

Polarization, double refraction, Nichol's prism

Hour -7

Accoustics

Accoustics of buildings, Sabine's formula, Sound recording and reproduction, Ultrasonics.

X-Ray & Solid State Physics

X-ray Spectra, Moseley's law, Space lattice, Unit cell Miller indices,

Origin of energy bands, classification of solids.

Hour : 2+6

Atomic Physics

Vector atom model, Pauli's exclusion principle Natural and artificial radioactivity, Nuclear reactions, fission and fusion, Nuclear reactor.

Hour- 8

Quantum Mechanics

Failure of classical concepts, De- Broglie hypothesis, Uncertainty principles, Wave Packets.

Phase and Group velocities.

Hour-3

Special theory of Relativity

Gallilean Transformation, Lorentz transformation, Length contraction and time dilation.

Hrs-3

Electronics

Characteristics of Triode, Valve, Triode as amplifier and oscillator, Basic iransistor Circuit.

Hour-3

Books: for Physics-I and Physics-II

1. Engineering Physics – P V. Naik.
2. Engineering Physics - Uma Mukherjee.
3. Engineering Physics - R. K. Gaur & S. Gupta.
4. A Text Book on Engineering Physics — B. L. Theraja.
5. Physics- part I & II — Resnick Haliday.
6. A Treatise on Heat — Saha & Srivastava.
7. General properties of matter — D. S. Mathur.
8. Principles of acoustics — Basudev Ghosh.
9. Introduction to special Relativity — J. H. Smith.
10. Introduction to Special Relativity — Robert Resnick.
- II. Electricity & Electronics — D. C. Tayal.
12. Electricity & Magnetism — Brijial & Subramanayam.
13. Quantum Mechanics — Powell & Craseman.
14. Quantum Mechanics — Pauling & Wilson.

PHY 201L Physics Practicals-II (0-0-4) 2 Credits
Total Marks 50 (40+10)

1. DETERMINE THE RADIUS OF CURVATURE OF A CONVEX LENS USING NEWTON'S RING.
2. DETERMINE THE VALUE OF MECHANICAL EQUIVALENT OF HEAT 'J' USING JOULE'S CALORIMETER (APPLY RADIATION CORRECTION).
3. DETERMINE THE SPECIFIC HEAT OF THE GIVEN LIQUID BY THE METHOD OF COOLING.
4. DETERMINE THE ANGLE OF THE PRISM AND THE ANGLE OF MINIMUM DEVIATION AND THEN THE REFRACTIVE INDEX OF THE MATERIAL OF THE PRISM.
5. MEASURE THE CURRENT FLOWING THROUGH AN EXTERNAL CIRCUIT WITH THE HELP OF A STANDARD CELL AND A POTENTIOMETER.
6. DETERMINE THE SPECIFIC RESISTANCE OF THE MATERIAL OF THE GIVEN WIRE USING A METER BRIDGE (APPLY END CORRECTION).
7. COMPARE THE VALUE OF TWO RESISTANCES BY USING A POTENTIOMETER.
8. DETERMINE THE TEMPERATURE CO-EFFICIENT OF A PLATINUM WIRE BY USING A METER BRIDGE.
9. DETERMINE THE REFRACTIVE INDEX OF A LIQUID BY USING A PLANE MIRROR AND CONVEX LENS.