

SRI Y.N.COLLEGE (AUTONOMOUS)-NARSAPUR (Affiliated to Adikavi Nannaya University) Thrice Accredited by NAAC at 'A' Grade Recognized by UGC as 'College with Potential for Excellence' For 2023-24 Batch [2020-21 Batch onwards] I B.Sc.: PHYSICS SEMESTER – I PAPER – I MECHANICS, WAVES AND OSCILLATIONS



ADDITIONAL INPUTS

1. Motion in a Central Force Field:

Basic idea of Global Positioning System (GPS), weightlessness, Physiological effects of astronauts

2. Coupled oscillations: (05 hrs)

Coupled oscillators-Introduction, Two coupled oscillators, Normal coordinates and Normal modes-N-coupled oscillators and wave equation.

3. Complex vibrations:

Fourier theorem and evaluation of the Fourier coefficients, analysis of periodic wave functionssquare wave.



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ADDITIONAL INPUTS

Interference of light:

Lloyd's single mirror, Phase change on reflection-Stokes' treatment.

Diffraction of light

Explanation of rectilinear propagation of light.

Polarisation of light: Basic principle of LCDs.



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II BSc – SEMESTER – 3 PAPER – III – WAVE OPTICS

- ✤ Astigmatism -- Curvature of field distortion.
- ✤ Calculation of longitudinal chromatic aberration of a thin lens
- Non reflecting films
- Semi conductor laser -- Laser characteristics

II B.Sc.: PHYSICS SEMESTER – IV PAPER – IV HEAT & THERMODYNAMICS ADDITIONAL INPUTS

- Thermodynamics-scale of temperature.
- Characteristics of Ideal Refrigerant
- Principle of refrigeration
- Vapour compression type refrigerator
- Degrees of freedom
- ✤ Thermodynamic scale of temperature and its identity with perfect gas scale



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- ✤ Electric Flux
- Polar and non-polar dielectrics in an electric field
- ✤ Magnetic Shell,
- Divergence and curl of magnetic field
- Qualitative treatment,
- * Magnetic properties of dia, para and Ferro magnetic materials
- ✤ Langevins theory of para magnetism
- Weiss theory of Ferro magnetism
- Energy losses and efficiency.
- Construction of single phase ac motor,
- Construction of single phase dc motor.
- ♦ Band theory of solids (qualitative) Intrinsic and extrinsic semi conductors.
- Hybrid parameters, Determination of hybrid parameters from transistor characteristics

III B.Sc.: PHYSICS SEMESTER – V PAPER – VI MODERN PHYSICS ADDITIONAL INPUTS

- ✤ Bohr's atomic theory,
- Spectra of Hydrogen,
- Spectral terms and spectral notations, Selection rules, Intensity rules
- Photoelectric effect-Einstein photoelectric equation.
- Stability of atom.
- ✤ Bohr's principle of complementarity
- Limitations of old quantum theory.
- Particle in a box
- ✤ one dimensional harmonic oscillator
- Application of Schrodinger wave equation to particle in three dimensional boxes.
- ✤ Nuclear reaction,
- kinematics
- ✤ Calculation of Born coefficient and repulsive exponent. Born Haber cycle.
- Persistent current, isotopic effect.
- Semi conductor nano particles
- carbon nano clusters
- BCS theory (elementary ideas only)



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- ✤ Polar and non-polar dielectrics in an electric field
- * Magnetic Shell,
- ✤ Divergence and curl of magnetic field
- ✤ Qualitative treatment,
- * Magnetic properties of dia, para and Ferro magnetic materials
- ✤ Langevins theory of para magnetism
- Weiss theory of Ferro magnetism
- ***** Energy losses and efficiency.
- ✤ Construction of single phase ac motor,
- ***** Construction of single phase dc motor.
- ***** Band theory of solids (qualitative) Intrinsic and extrinsic semi conductors.
- Hybrid parameters, Determination of hybrid parameters from transistor characteristics

III B.Sc.: PHYSICS SEMESTER – V PAPER – VII B SOLAR ENERGY AND APPLICATIONS ADDITIONAL INPUTS

- ✤ Bohr's atomic theory,
- * Spectra of Hydrogen,
- * Spectral terms and spectral notations, Selection rules, Intensity rules
- * Photoelectric effect-Einstein photoelectric equation.
- ✤ Stability of atom.
- * Bohr's principle of complementarity
- Limitations of old quantum theory.
- Particle in a box
- * one dimensional harmonic oscillator
- * Application of Schrodinger wave equation to particle in three dimensional boxes.
- Nuclear reaction,
- kinematics
- ***** Calculation of Born coefficient and repulsive exponent. Born Haber cycle.
- ✤ Persistent current, isotopic effect.
- * Semi conductor nano particles
- ✤ carbon nano clusters
- ***** BCS theory (elementary ideas only)