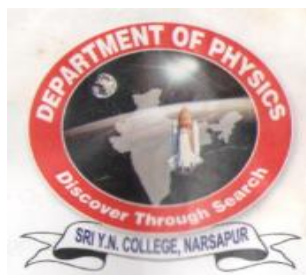




ADDITIONAL INPUTS

2024-2025



DEPARTMENT OF PHYSICS

SRI Y.N.COLLEGE (A)

NARSAPUR



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For 2024-2025 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:

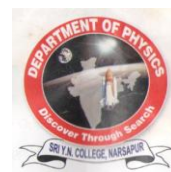
Fourier theorem and evaluation of the Fourier coefficients, analysis of periodic wave functions- square wave.



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I B.Sc.: PHYSICS SEMESTER – II PAPER – II
WAVE OPTICS



ADDITIONAL INPUTS

Interference of light:

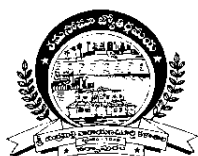
Lloyd's single mirror, Phase change on reflection-Stokes' treatment.

Diffraction of light

Explanation of rectilinear propagation of light.

Polarisation of light:

Basic principle of LCDs.



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II B.Sc.: PHYSICS SEMESTER – III PAPER – III
WAVE OPTICS
ADDITIONAL INPUTS

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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III B.Sc.: PHYSICS SEMESTER – V PAPER – V
ELECTRICITY, MAGNETISM AND ELECTRONICS
ADDITIONAL INPUTS



- ❖ 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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III B.Sc.: PHYSICS SEMESTER – V PAPER – VI B
LOW TEMPERATURE PHYSICS AND REFRIGERATION
ADDITIONAL INPUTS



- ❖ 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)