

Lesson plan 2023-24
Physics Paper -1 B.Sc.III
Amar Singh (Extension Lecturer)
SMSD GOVT COLLEGE NANGAL CHAUDHARY

4th week of Month July

Crystalline forms
Gallssy forms,
Liquid crystals.

1st week of Month August

Crystal structure,
Periodicity,
Lattice and basis,

2nd week of Month August

crystal translational vectors and axes.
Unit cell
primitive cell,

3rd week of Month August

Winger Seitz primitive Cell,
Symmetry operations for a two dimensional
crystal,

4rht week of Month August

Bravais Lattices in two dimensions
Bravais Lattices three dimensions.

1st week of Month September

crystal planes and
Miller indices,

2nd week of Month September

Interplanner spacing,
Crystal structures of Zinc sulphide,

3rd week of Month September

Crystal structure Sodium Chloride
Crystal structure of diamond,

4th week of Month September

X-ray diffraction,
Bragg's Law

1st week of Month October

Experimental x-ray diffraction methods,
K-space.

2nd week of Month October

Reciprocal lattice and
Physical significance of Reciprocal lattice

3rd week of Month October

Reciprocal lattice vectors,
Reciprocal lattice to a simple cubic lattice

4th week of Month October

Reciprocal lattice to b.c.c
Reciprocal lattice to f.c.c.

1st week of Month November

Specific heat : Specific heat of solids,
Einstein's theory of specific heat

2nd week of Month November

Debye model of specific heat of solids.

3rd week of Month November

Revision & related Numerical problems

4th week of Month November

Revision & related Numerical problems

LESSON PLAN

Session -
2023-24

SANSI GOVT COLLEGE, NANGAL CHAUDHARY
(M/GARH)
B. SC. 3rd Year (5th Semester)

DR. HEMANT KUMAR
SHARMA

PAPER-III (Quantum Mechanics)

DEPARTMENT OF PHYSICS

→ JULY-2023 (WEEK-4th) FROM: - (24 JULY TO 31 JULY)

UNIT-I

* FAILURE OF E.M. THEORY.

* QUANTUM THEORY OF RADIATION (OLD QUANTUM THEORY)

⇒ AUG-2023 (WEEK-1st) (31 JULY TO 05 AUG)

* PHOTON

* PHOTOELECTRIC EFFECT & EINSTEIN'S PHOTOELECTRIC EQUATION.

⇒ WEEK-2nd (FROM: - 07 AUG TO 12 AUG)

* COMPTON EFFECT (THEORY AND RESULT).

* INADEQUACY OF OLD QUANTUM THEORY.

⇒ WEEK-3rd (FROM: - 14 AUG TO 19 AUG)

* DE-BROGLIE HYPOTHESIS.

* DAVISSON AND GERMER EXPERIMENT.

⇒ WEEK-4th (FROM: - 21 AUG TO 26 AUG)

* G.P. THOMSON EXPERIMENT.

* PHASE VELOCITY AND GROUP VELOCITY.

⇒ WEEK-5th (FROM: - 28 AUG TO 2 SEP.)

* HEISENBERG'S UNCERTAINTY PRINCIPLE.

* TIME-ENERGY AND ANGULAR MOMENTUM.

(P.T.O.)

SEPT-2023 (WEEK-1st) (FROM:- 04 sept to 09 sept.) 2

- * POSITION UNCERTAINTY FROM DE-BROGLIE WAVE
- * WAVE-PARTICLE DUALITY
- * GAMMA RAY MICROSCOPE.

WEEK-2ND (FROM:- 11 sept to 16 sept.)

- * ELECTRON DIFFRACTION FROM A SLIT.
- * UNIT-II NO START.

WEEK-3RD (FROM:- 18 sept to 23 sept.)

- * DERIVATION OF TIME DEPENDENT SCHRÖDINGER WAVE EQUATION.
- * EIGEN VALUES
- * EIGEN FUNCTIONS.

WEEK-4th (FROM:- 25 sept to 30 sept.)

- * WAVE FUNCTION AND ITS SIGNIFICANCE
- * NORMALIZATION OF WAVE FUNCTION.
- * CONCEPT OF OBSERVABLE AND OPERATOR.

OCT-2023 (WEEK-1st) (FROM:- 02 oct to 07 oct.)

- * SOLUTION OF SCHRÖDINGER EQUATION FOR HARMONIC OSCILLATOR GROUND STATES AND EXCITED STATES.

WEEK-2ND (FROM:- 08 oct to 14 oct.) (UNIT-III)

- * APPLICATION OF SCHRÖDINGER EQUATION IN THE SOLUTION OF THE FOLLOWING ONE DIMENSIONAL PROBLEMS:- FREE PARTICLE IN ONE DIMENSIONAL BOX.

WEEK-3rd (FROM:- 16 oct to 21 oct.)

- * SOLUTION OF SCHRÖDINGER WAVE EQUATION
- * EIGEN FUNCTION, EIGEN VALUES.

WEEK-4th (FROM:- 23 oct to 28 oct.)

- * QUANTIZATION OF ENERGY AND MOMENTUM.

NODES AND ANTINODES.

* ZERO POINT ENERGY.

NOV - 2023 (WEEK-1ST)

FROM:- 30 OCT to 04 NOV.

* ONE-DIMENSIONAL POTENTIAL BARRIER
 $E > V_0$ (REFLECTION AND TRANSMISSION)
COEFFICIENT

WEEK-2ND (FROM:- 06 NOV. to 11 NOV)

* ONE-DIMENSIONAL POTENTIAL BARRIER
 $E > V_0$ (REFLECTION COEFFICIENT,
PENETRATION OF LEAKAGE CO-EFFICIENT,
PENETRATION DEPTH.)

⇒ WEEK-3RD (FROM:- 17 NOV TO 24 NOV)

* REVISION AND TEST *

Hemant