

Lesson Plan (2023-24) 2023-24 (Evensem)

Name of the Assistant: Pooja,
Class and Section: B.Sc 2nd y (4th sem)

Subject: physics

Statistical physics and optics

Week	Date	Topics
	15.01.2024	Paper-I unit-I probability
	16.01.2024	some probability considerations
	18.01.24	maximum and minimum probability, phase space.
	19.01.24	Distribution of molecules in 2 boxes.
	20.01.24	case with weightage, microstates, macrostates
	22.01.24	statistical fluctuations constraints and accessible states
	23.01.24	Thermodynamical probability
	24.01.24	unit-II - postulates of statistical physics.
	25.01.24	division of phase space into cells, equilibrium b/w 2 systems
	27.01.24	b-parameters, Entropy and probability
	29.01.24	Boltzmann's Distribution Law, Evaluation of k_B
	30.01.24	Bose-Einstein statistics, Planck's radiation.
	31.01.24	Test - I unit-I
	1.02.24	unit-3 - Fermi Dirac statistics, Maxwell
	2.02.24	Degeneracy and Bose-Einstein condensation
	3.02.24	F.B gas, electron gas in metals
	5.02.24	zero point energy, specific heat of metals
	6.02.24	Test - 2
	7.02.24	Paper-II unit-I - colours at thin films
	8.02.24	wedge shaped film Newton's Rings.
	9.02.24	Michelson's Interferometer & application
	12.02.24	Standardisation of a meter.
	13.02.24	Determination of wave length.
	15.02.24	Fresnel's Diffraction, half period zones
	16.02.24	zone plate diffraction at a straight edge.
	17.02.24	Rectangular slit and circular aperture.
	19.02.24	problems.
	20.02.24	unit-2 - Fraunhofer one slit diffraction
	21.02.24	Two slit diffraction, N-slit diffraction.
	22.02.24	plane transmission grating spectrum
	23.02.24	dispersive power of a grating
	24.02.24	Limit of resolution, Rayleigh's criterion
	26.02.24	Resolving power of telescope and grating.
	27.02.24	Take problems
	28.02.24	unit-3 - polarisation & double refraction
	29.02.24	polarisation by reflection & scattering.
	1.03.24	Malus law.
	4.03.24	Phenomenon of double refraction
	5.03.24	Huygen's wave theory of double refraction

Lesson Plan (2021-22) 2023-24 (Evensem)

Name of the Assistant: Pooja
 Class and Section: B.Sc IIIrd y (6th sem)
 Subject: physics. (Atomic, molecular & Laser and nuclear physics)

Week	Date	Topics
1	15.01.24	unit-1 paper-I vector atom model
	16.01.24	quantum no. associated with vector model
	18.01.24	penetrating and non penetrating orbits
	19.01.24	Alkali spectra, spin orbit interaction
	20.01.24	doublet term separation LS & RS coupling
	22.01.24	jj coupling
2	23.01.24	unit-2 - Zeeman effect, Zeeman pattern D ₁ & D ₂
	24.01.24	Paschen Back effect of a single valence electron
	25.01.24	weak field Stark effect of Hydrogen atom
	27.01.24	Discrete set of electronic energies of molecules
	29.01.24	quantisation of vibrational & Raman effect
	30.01.24	Stark's and anti Stark's lines.
3	31.01.24	Test-1
	1.02.24	unit-3 - main features of a laser, directionality
	2.02.24	High intensity, high degree of coherence
	3.02.24	spatial and temporal coherence, Einstein's coefficient
	5.02.24	possibility of amplification, momentum transfer
	6.02.24	life time of a level, kinetics of optical absorption.
4	7.02.24	Laser emission, laser pumping, He-Ne laser
	8.02.24	Ruby laser, Applications of laser
	9.02.24	paper-II unit-I Nuclear mass and binding energy
	12.02.24	Systematics, binding energy and nuclear stability
	13.02.24	Nuclear size, spin, parity statistics
	15.02.24	magnetic dipole moment, quadrupole moment
5	16.02.24	Determination of mass by Bain-Bridge.
	17.02.24	Jordan mass spectrograph, Massey law.
	19.02.24	Size of nuclei by Rutherford Back scattering
	20.02.24	Test-2
	21.02.24	unit-2 Interaction of heavy charged particles
	22.02.24	Alpha disintegration and theory Energy loss.
6	23.02.24	Energetics of alpha-decay, Range straggling
	24.02.24	Heiger-Nuttal law, Beta-particle
	26.02.24	origin of continuous beta spectrum
	27.02.24	type of beta decay & energetics beta decay
	28.02.24	Energy loss of beta-particles, Range of electron
	29.02.24	Absorption of beta particles
7	1.03.24	Nature of gamma rays, Energetics of γ rays
	4.03.24	passage of Gamma radiations through matter
	5.03.24	electron positron annihilation

