**PG.GOVT COLLEGE FOR GIRLS, SECTOR-42, CHANDIGARH**

**Teaching Plan Session Odd Semester**

**(2018-19)**

**Class: B.Sc 3rd Semester Name of the Teacher: Neeru Sehgal**

**Subject: Physics Period : IV**

**Paper : C Room No : 129**

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| **S. No** | **Date From** | | **Date Upto** | **Topics to be covered** |
| Week 1 | **(For ongoing classes)** | | | Black body radiation ,Photoelectric effect-Expt. , Classical theory and quantum theory |
| July 24, 2018 | | July 28, 2018 |
| Week 2 | July 30, 2018 | August 4, 2018 | | Compton effect, X-raydiffraction, Pair production |
| Week 3 | August 6, 2018 | August 11, 2018 | | Need for Quantum Mechanics, difference b/w Classical and Quantum Mechanics, dual nature of light, de Broglie hypothesis, de Broglie wavelength associated with electron and moving objects, related numericals, |
| Week 4 | August 13, 2018 | August 18, 2018 | | exptal. Verification of de Broglie hypothesis, wave packet, wave velocity, group velocity, derivation of amplitude and velocity of wave packet, relation b/w vp and vg, principle of complementarity |
| Week 5 | August 20, 2018 | August 25, 2018 | | Uncertainty Principle- statement, proof-ideal expt,. applications-non-existence of electrons in nucleus, existence of protons and neutrons in nucleus, zero point energy, binding energy of electrons in atom, harmonic oscillator, size of elementary cell in phase space Related numericals of Uncertainty Principle, class test, |
| Week 6 | August 27, 2018 | September 1, 2018 | | wave fn, for a free particle, time dependent and time independent Schrodinger eq and their solutions, physical interpretation of Ψ, normalization, probability current density,principle of superposition |
| Week 7 | September 3, 2018 | September 8, 2018 | | Fundamental postulates of quantum mechanics.  Eigenvalues and eigenfunctions. Operator  formalism, Position, momentum and energy operators,expectation values |
| Week 8 | September 10, 2018 | September 15, 2018 | | hermitian operator and its properties, expectation values of dynamic variables- position, momentum, energy ,Ehrenfest theorem |
| Week 9 | September 17, 2018 | September 22, 2018 | | Photon and gravity ,electron microscope,particle in a box |
| Week 10 | September 24, 2018 | September 29, 2018 | | Problems in one and three dimensions-particle incident at a finite step potential with E<Vo and E>Vo, |
| Week 11 | October 1, 2018 | October 8, 2018 | | Potential barrier,tunnel effect, scanning tunneling microscope |
| **MID SEMESTER EXAMINATION (October 11, 2018 to October 17, 2018)** | | | | |
| Week 12 | October 20, 2018 | October 27, 2018 | | rectangular potential well, Linear harmonic oscillator. |
| Week 13 | October 29, 2018 | November 3, 2018 | | Conversion of SchrÖdinger wave equation for hydrogen atom from cartesion to spherical polar coordinates, method of separation of variables |
| Week 14 | November 5, 2018 | November 10, 2018 | | Solution of Θ,ф and R equations , hydrogen atom energy levels and eigenfunctions, |
| Week 15 | November 12, 2018 | November 17, 2018 | | Degeneracy , physical significance of Principal, Orbital and Magnetic,quantum numbers |
| Week 16 | November 19, 2018 | November 22, 2018 | | Electron probability density-Azimuthal and radial |
| Week 17 | November 26, 2018 | December 1, 2018 | | Numerical and revision |