**Post Graduate Govt. College for Girls, Sector-42, Chandigarh**

**Teaching Plan (Even Semester) Session (2019-2020)**

**Class: B.Sc. 3rd sem /1st sem**   **Name of the Teacher: Neeru Sehgal**

**Subject: Physics Period: 4th/3rd**

**Paper: C/B Room No:129/126**

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| **S. No** | **Dates** | **Topics to be Covered** |
| Week 1 | 09-01-2020 to 11-01-2020 | Bohr model of atom, Hydrogen atom spectrum, energy level diagram of hydrogen, excitation and ionization potential  Wave motion and its characteristics |
| Week 2 | 13-01-2020 to 18-01-2020 | Electron spin, spin magnetic moment, orbital angular momentum, orbital magnetic moment, space quantization of orbital and spin angular momentum, Larmor’s frequency ,class test  Wave equation and its solution, particle velocity, acceleration. |
| Week 3 | 20-01-2020 to 25-01-2020 | Vector atom model,total angular momentum, Stern Gerlach expt., spin orbit interaction  Energy of progressive wave, longituidinal waves in a rod, its wave equation and solution ,its kinetic energy and potential energy. |
| Week 4 | 27-01-2020 to 01-02-2020 | Fine structure of hydrogen,Lande g-factor for electron, Degenerace, Zeeman effect and experiment, classical theory of normal Zeeman effect  Characteristic impedance, waves in absorbing media |
| Week 5 | 03-02-2020 to 08-02-2020 | Quantum theory of normal Zeeman effect, Zeeman shift ,Anomalous Zeeman effect, Quantum mechanical theory of Anomalous Zeeman effect, Anomalous Zeeman effect in Na  Reflection and transmission coefficients of transverse and longitudinal waves |
| Week 6 | 10-02-2020 to 15-02-2020 | Interaction of radiation with matter,transitionprobability, radiative transition  Matching of impedance, Standing wave, Wave velocity and group velocity |
| Week 7 | 17-02-2020 to 22-02-2020 | Selection rules, life time,Paschen-Back Effect,  Stationary waves , energy of vibrating strings |
| Week 8 | 24-02-2020 to 29-02-2020 | Stark effect, numericals,class test  Maxwells equations, em wave with conductivity zero |
| Week 9 | 02-03-2020 to 05-03-2020 | Identical particles, symmetric and antisymmetricwavefunctions,Pauli exclusion principle, exchangeforce,shells and subshells in atom  Refractive index, Transverse nature of em wave |
| Mid Semester Exams (06-03-2020 to 13-03-2020) | | |
| Week 11 | 14-03-2020, 16-03-2020 to 21-03-2020 | Coupling scheme-LS coupling,jjcoupling,spectral terms for LS coupling, Slater determinant, Hund’s rule  Poynting vector and theorem |
| Week 12 | 24-03-2020 to 28-03-2020 | Atomic spectra of H,Na,He,Hg,, Production of X-ray, Properties, applications of X-rays, diffraction of Xays, Bragglaw,  Em wave for conducting medium, Skin depth |
| Week 13 | 30-03-2020 to 04-04-2020 | absorption of X-rays, X-ray spectrum-origin of continuous spectrum, origin of characteristics spectrum,Moseley law  Dispersion, Impedance of conducting medium |
| Week 14 | 07-04-2020 to 11-04-2020 | Auger effect,molecularbonding,H ion,H molecule,complex molecules,types of molecular spectra  Reflection and transmission of em waves at boundary |
| Week 15 | 15-04-2020 to 18-04-2020 | Symmetric structures, rotational energy leyels, rotational spectrum, Vibrational energy levels,vibrationalspectrum.  Numerical and test |
| Week 16 | 20-04-2020 to 24-04-2020 | Vib.-rotational spectrum, Electronic spectrum,Ramaneffect,  Classical theory, Quantum theory,experimental study  Reflection and transmission of em waves at boundary contd. |
| Week 17 | 27-04-2020 to 02-05-2020 | Selection rules of Raman effect,applications,nuclear magnetic resonance,  Relation between electric and magnetic field vector |
| Week 18 | 04-05-2020 | Franck Condon principle,Classical theory of Raman effect, Quantum theory of Raman effect ,Magnetic resonance experiments.  Numerical |