**Govt. College Barota ,Gohana, Sonepat**

**Lesson Plan (Even Semester 2024-25)**

**Name of Assistant Professor: Dr. Mukesh Sheoran**

**Class: - B.Sc. 6th Semester**

**Subject: Physics**

**Paper I – PHY-601: Atomic Molecular and Laser Physics**

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| **Sr. No.** | **Date/Week/Month** | **Syllabus** |
| 1. | January(from 2nd week) & February2025 | Vector atom model, quantum numbers associated with vector atom model, penetrating and non- penetrating orbits (qualitative description ), spectral lines in different series of alkali spectra, spin orbit interaction and doublet term separation. LS or Russel-Saunder Coupling, jj coupling (expressions for interaction energies for LS and |
| 2 | March 2025 |  jj coupling required) Zeeman effect (normal and Anomalous) Zeeman pattern of D1 and D2 lines of Na-atom, Paschen Back effect of a single valence electron system. Weak field, Stark effect of Hydrogen atom |
| 3 | April 2025 | Main features of a laser : Directionality, high intensity, high degree of coherence, spatial and temporal coherence, Einstein's coefficients and possibility of amplification, momentum transfer, life time of a level, kinetics of optical absorption. Threshold condition for laser emission, Laser pumping, He-Ne laser and RUBY laser (Principle, Construction and Working). Applications of laser in the field of medicine and industry |
| 4 | May 2025(1st week) | Test and Revision |