**Pt. C.L.S. Govt. College, Karnal**

**LESSON PLAN (w.e.f. January 2024)**

**Name: Dr. Nisha Mann Subject: Physics**

**Class: B.Sc. III year 6th Sem (Sec –B) Paper: Solid State and Nano Physics**

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| **Month/Week** | Contents |
| Week 1 | Crystalline and Glassy forms, liquid crystals, crystal structure, periodicity, lattice and basis |
| Week 2 | Crystal translational vectors and axis, unit cell and primitive cell |
| Week3 | Weigner Seitz primitive cell, symmetric operations for a 2D crystal |
| Week 4 | Bravias Lattice in 2D and 3 D, crystal planes and Miller indices, interplaner spacing  |
| Week 5 | Crystal structure of zinc sulphide, sodium chloride and diamondTest of unit 1 |
| Week 6 | X ray diffraction, Bragg’s Law |
| Week7 | Experimental X ray diffraction method, K space and reciprocal lattice |
| Week 8 | Physical significance of reciprocal lattice, reciprocal lattice vectors |
| Week 9 | Reciprocal lattice to a SC, BCC, FCC Test of Unit 2 |
| Week 10 | Superconductivity- Introduction, survey of superconductivity, superconducting systems |
| Week 11 | High temperature superconductors, isotopic effect, critical magnetic field, Meissner effect, London Theory and Pippard’s equation, classification of superconductors |
| Week 12 | BCS theory, flux quantization, Josephson’s effect, Practical applications of superconductivity and limitations, power applications of superconductors. |
| Week 13 | Introduction to nano physics, benefits and challenges in molecular manufacturing, molecular assembler concept |
| Week 14 | Understanding advance capabilities, vision and objective of nano technology, nano technology in different fileds. |
| Week 15 | Revision and test of unit 3 and 4. |