**Post Graduate Government College for Girls, Sector-42, Chandigarh**

**Teaching Plan for Bachelors (Third and Fifth Semester) and Post Graduate (Third Semester)**

**Session (2020-2021)**

**Class: B.Sc. 3rd Semester Name of the Teacher: Kamlesh Kumari**

**Subject: Physics Paper: A and B**

|  |  |  |
| --- | --- | --- |
| **S. No** | **Dates** | **Topics to be Covered** |
| Week 1 | 03/08/2020 – 08/08/2020 |  |
| Week 2 | 10/08/2020 – 14/08/2020 | Concept of coherence, spatial and temporal coherence, coherence time, coherence length, area of coherence. |
| Week 3 | 17/08/2020 – 22/08/2020 | Conditions for observing interference fringes, Interference by wavefront division and amplitude division. Young’s double Slit experiment. Lloyd’s mirror and Fresnel’s biprism , Phase change on reflection. Newton’s rings, Michelson interferometer- working, principle and nature of fringes . |
| Week 4 | 24/08/2020 – 29/08/2020 | Basic ideas of Statistical Physics , Scope of Statistical Physics , basic ideas about probability , distribution of four distinguishable particles in two compartments of equal size. |
| Week 5 | 31/08/2020- 05/09/2020 | Concept of macrostates, microstates, thermodynamic probability, effects of constraints on the system. Distribution of n particles in two compartments. |
| Week 6 | 07/09/2020- 12/09/2020 | Interference in thin films , Role of interference in anti- reflection . Multiple beam interference.  Fabry – Perot Interferometer, nature of fringes, finesse. Numerical problems . |
| Week 7 | 14/09/2020- 19/09/2020 | Diffraction :Huygen - Fresnel theory of Diffraction . Fresnel’s half period zones , zone plates. Distinction between Fresnel and Fraunhofer diffraction. |
| Week 8 | 21/09/2020- 26/09/2020 | Fraunhofer diffraction due to single slit and intensity distribution , double slits and multiple slits (qualitative). Fraunhofer diffraction at rectangular ( qualitative discussion ) and circular apertures .Numerical problems. |
| Week 9 | 28/09/2020- 03/10/2020 | Deviation from the state of maximum probability, equilibrium state of dynamic system, distribution of distinguishable n particles in k compartments of unequal sizes. Numerical problems. |
| Week 10 | 05/10/2020- 10/10/2020 | Phase space and its division into elementary cells , three kinds of statistics , the basic approach in the three statistics. Maxwell Boltzmann statistics applied to an ideal gas in equilibrium. |
| Week 11 | 12/10/2020- 16/10/2020 | Effects of diffraction in  optical imaging, resolving power of microscope and telescope,  diffraction grating, its use as a spectroscopic  element, resolving power, Moire’s fringes. |
| Week 12 | 19/10/2020- 24/10/2020 | Polarization : Concept and analytical treatment of unpolarized , plane polarized  and elliptically polarized light. |
| Week 13 | 27/10/2020- 30/10/2020 | Experimental verification of Maxwell – Boltzman’s law of distribution of molecular speeds. Need of quantum statistics- B.E. statistics. derivation of Planck’s law of radiation. |
| Week 14 | 03/11/2020- 07/11/2020 | Deduction of Wein’s displacement law and Stefan’s law from Planck’s law. F.D. statistics , Comparison of M.B. B.E. and F.D. statistics. |
| Week 15 | 09/11/2020- 12/11/2020 | Double refraction, Nicol prism .Sheet polarizers, retardation plates.  Production and analysis of polarized light ( quarter and half wave plates ). |
| Week 16 | 16/11/2020- 21/11/2020 | Numerical Problems and Class test. |
| Week 17 | 23/11/2020- 28/11/2020 | Revision of Syllabus. |