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

**Teaching Plan (OddSemester) Session (2019-2020)**

**Class: B.Sc 4th**   **Name of the Teacher:Mrs. Neeru Sehgal**

**Subject: Physics Period:4th**

**Paper: A/C Room No:129**

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| **S. No** | **Dates** | **Topics to be Covered** |
| Week 1 | 23-07-2019 to 27-07-2019 | Formalism of Wave Mechanics :  Plancks’s formula of Black body radiation and energy quantization, |
| Week 2 | 29-07-2019 to 03-08-2019 | Wave-particle duality – Photoelectric effect , X-raydiffraction, Compton effect, Pair production, Photon and gravity, numericals |
| Week 3 | 05-08-2019 to 10-08-2019 | De Brogile waves, wave packet, Phase velocity and Group velocity, Electron microscope, Particle in a box, Particle diffraction, Davisson-Germer experiment, Interferferometry with particles. Uncertainty principle with illustrations, Principle of complementarity |
| Week 4 | 13-08- 2019 to 17-08-2019 | Quantum mechanics, Wave equation, Plausible arguments leading to time-dependent Schrodinger equations, Born’s interpretation of Wave function,  complex character, continuity and boundary  conditions, probability interpretation,normalizati  on, Probabilty current, Probability conservation  equation, Principle of superposition. |
| Week 5 | 19-08-2019 to 24-08-2019 | Quantum mechanics, Wave equation, Plausible arguments leading to time-dependent Schrodinger equations, Born’s interpretation of Wave function,Fundamental postulates of quantum mechanics.  Eigenvalues and eigenfunctions. Operator  formalism, Position, momentum and energy operators, |
| Week 6 | 26-08-2019 to 31-08-2019 | expectation values ,Ehrenfest theorem, Hermitian operators, numericals |
| Week 7 | 02-09-2019 to 07-09-2019 | Basic idea of Statistical Physics, probability, Principle of equal a priori probability, basic problems in prob., distribution of particles in two equal sized compartments, concept of macrostates, microstates, thermodynamic prob., effects of constraints on system, |
| Week 8 | 09-09-2019to 14-09-2019 | Distribution of n particles in two comptt Deviation from the state of maximum prob., static and dynamic systems, class test |
| Week 9 | 16-09-2019 to 21-09-2019 | Time spent by a dynamic system in a particular macrostate, distribution of distinguishable n particles in k comptt. Of unequal sizes,phase space and its division into elementary cells |
| Week 10 | 23-09-2019 to28-09-2019  (Youth Festival 24-09-2019 to 27-09-2019) | basic approach to three statistics, Maxwell Boltzmann statistics distribution law, , |
| Week 11 | 30-09-2019 to 05-10-2019 | Graphical representation of M-B dist. of speeds, exptal. Verification of M-B law of dist. of speeds, expressions for most probable, average and r.m.s speeds , Limitation of MB statistics , BE distribution law , Planck’s law for energy distribution Wein displacement law ,wein’s law of energy distribution , |
| Mid Semester Exams | | |
| Week 12 | 16-10-2019 to 19-10-2019 | Rayleigh jeans law of energy distribution ,Stefan ‘s law , FD dirac distribution law, distribution of energy among the free electrons in a metals , numericals |
| Week 13 | 21-10-2019 to 26-10-2019 | Mean energy and average speed of electrons at 0 K, comparison between three statistics  Potential step(E<V ), Potential step(E>V ) |
| Week 14 | 29-10-2019 to 02-11-2019 | Potential barrier, Tunnel effect examples |
| Week 15 | 04-11-2019 to 09-11-2019 | ScanningTunneling microscope, rectangular potential well, Linear harmonic oscillator. |
| Week 16 | 11-11-2019 to 16-11-2019 | SchrÖdinger equation for spherically symmetric potential, spherical harmonics,solution of radial equation |
| Week 17 | 18-11-2019 to 23-11-2019 | wave function of hydrogen atoms , degeneracy,class test |
| Week 18 | 25-11-2019 to 30-11-2019 | Principal, Orbital and Magnetic quantumnumbers, Electron probability density, class test |