2015-2016 SEM –II ECE-B ENGINEERING PHYSICS LESSON PLAN

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **PERIOD** | **DATE**  **{Tentative}** | **TOPIC** | **UNIT**  **No** | **TEACHING**  **METHODOLOGY** | **REMARKS** | **CORRECTIVE**  **ACTION UPON**  **REVIEW** |
|  |  | **UNIT I - Interference** |  |  |  |  |
| 1 | 29-12-15 | Young’s Double Experiment | I | ,, |  |  |
| 2 | 29-12-15 | Conditions for the Interference | I | ,, |  |  |
| 3 | 31-12-15 | Thin Film Interference under Reflected System | I | ,, |  |  |
| 4 | 5-1-16 | Newton’s Rings under Reflected System | I | ,, |  |  |
| 5 | 5-1-16 | Newton’s Rings Continued…  Applications of Newton’s Rings | I | ,, |  |  |
| 6 | 7-1-16 | Problems on Interference and Revision | I | ,, |  |  |
|  |  | **UNIT I - Diffraction** |  |  |  |  |
| 7 | 12-1-16 | Introduction to Diffraction – Fresnel and Fraunhofer Diffraction  Difference Between the Interference and Diffraction | I | ,, |  |  |
| 8 | 12-1-16 | Fraunhofer Diffraction at Single Slit | I | ,, |  |  |
| 9 | 19-1-16 | Fraunhofer Diffraction at Single Slit continued… Effect of Slit Width  Maximum Number of Orders | I | ,, |  |  |
|  |  | **UNIT II – Fiber Optics** |  |  |  |  |
| 10 | 19-1-16 | Introduction to Fiber Optics | II | ,, |  |  |
| 11 | 21-1-16 | Total Internal Reflection  Principle of Optical Fiber | II | ,, |  |  |
| 12 | **21-1-16** | Acceptance Angle, Acceptance Cone and Numerical Aperture | II | ,, |  |  |
| 13 | 28-1-16 | Types of Optical Fibers and Refractive Index Profiles | II | ,, |  |  |
| 14 |  | Single Mode and Multimode Fibers and Maximum Number of Modes | II | ,, |  |  |
| 15 | 2-2-16 | Advantages of Optical Fiber Communication | II | ,, |  |  |
| 16 | 4-2-16 | Problems on Fiber Optics and Revision | II | ,, |  |  |
|  |  | **UNIT II - Lasers** |  |  |  |  |
| 17 | 4-2-16 | Introduction to Lasers –  Ideal Sinusoidal Wave and Practical Wave Pulses [Incoherent Pulses] | II | ,, |  |  |
| 18 | 9-2-16 | Characteristics of a Laser | II | ,, |  |  |
| 19 | 9-2-16 | Absorption, Spontaneous and Stimulated Emissions and  Einstein’s Coefficients | II | ,, |  |  |
| 20 | 11-2-16 | Einstein’s Coefficients continued… - MASER and LASER | II | ,, |  |  |
| 21 | 11-2-16 | Population Inversion in Three Level and Four Level Systems  Optical Feedback and Resonating Action | II | ,, |  |  |
| 22 | 16-2-16 | Ruby Laser and He-Ne Laser and Applications of Lasers | II | ,, |  |  |
| 23 | 16-2-16 | Problems on Lasers and Revision | II | ,, |  |  |
|  |  | **UNIT III – Crystal Structure** |  |  |  |  |
| 24 | 23-2-16 | Introduction to Crystal Structure and Basic Terms – Unit Cell, Primitive Cell, Lattice, Basis, Crystal Structure | III | ,, |  |  |
| 25 | 23-2-16 | Lattice Parameters [Crystallographic Axes, Interfacial Angles and Primitives] Atomic Radius, Coordination Number and Packing Fraction | III | ,, |  |  |
| 26 | 25-2-16 | Bravais Lattices | III | ,, |  |  |
| 27 | 25-2-16 | Illustration and Packing Fraction of Simple Cubic Structure | III | ,, |  |  |
| 28 | 28-2-16 | Illustration and Packing Fraction of Body Centered Cubic Structure | III | ,, |  |  |
| 29 | 8-3-16 | Illustration and Packing Fraction of Face Centered Cubic Structure | III | ,, |  |  |
| 30 | 8-3-16 | Problems on Crystal Structure and Revision | III | ,, |  |  |
|  |  | **UNIT III – X-Ray Diffraction** |  |  |  |  |
| 31 | 10-3-16 | Crystal Planes, Directions and Miller Indices | III | ,, |  |  |
| 32 | 10-3-16 | Procedure for Finding Miller Indices and  Important Features of Miller Indices | III | ,, |  |  |
| 33 | 15-3-16 | Inter Planar Spacing | III | ,, |  |  |
| 34 | 15-3-16 | Diffraction of X-Rays by Crystal Planes and Bragg’s Law | III | ,, |  |  |
| 35 | 17-3-16 | Problems on X-Ray Diffraction and Revision | III | ,, |  |  |
|  |  | **UNIT IV – Magnetic Properties** |  |  |  |  |
| 36 | 17-3-16 | Basic Terms in Magnetism – Magnetic Flux (φ),  Magntic Flux Density/Magnetic Field Induction/ Magnetic Induction (B)  Magnetic Filed Strength/Magnetizing Force/Magnetic Field Intensity/Magnetic Intensity/Intensity of Magnetizing Field (H)  Intensity of Magnetization (I), Permeability (µ) and Susceptibility | IV | ,, |  |  |
| 37 | 22-3-16 | Basic Terms Continued…, Relation between B, H & I | IV | ,, |  |  |
| 38 | 22-3-16 | Origin of Magnetic Moment – Bohr Magnetron | IV | ,, |  |  |
| 39 | 24-3-16 | Dia, Para and Ferromagnetism – Weiss and Domain Theory | IV | ,, |  |  |
| 40 | 29-3-16 | Hysteresis – Soft and Hard Magnetic Materials | IV | ,, |  |  |
| 41 | 29-3-16 | Problems on Magnetic Properties and Revision | IV | ,, |  |  |
|  |  | **UNIT IV – Dielectric Propeties** |  |  |  |  |
| 42 | 31-3-16 | Introduction to Dielectrics and Basic Terms | IV | ,, |  |  |
| 43 | 31-3-16 | Basic Terms Continued… | IV | ,, |  |  |
| 44 | 7-4-16 | Relation between D, E & P and  Relation between Permittivity and Susceptibility | IV | ,, |  |  |
| 45 | 7-4-16 | Electronic Polarization & Ionic Polarization | IV | ,, |  |  |
| 46 | 12-4-16 | Orientational Polarization | IV | ,, |  |  |
| 47 | 12-4-16 | Total Polarization | IV | ,, |  |  |
| 48 | 19-4-16 | Ferroelectricity and Piezoelectricity | IV | ,, |  |  |
| 49 | 19-4-16 | Problems on Dielectric Properties and Revision | IV | ,, |  |  |
|  |  | **UNIT V – Free Electron Theory** |  |  |  |  |
| 50 | 21-4-16 | Classical Free Electron Theory | V | ,, |  |  |
| 51 | 21-4-16 | Mean Free Path, Relaxation Time and Drift Velocity  Relation between various Terms | V | ,, |  |  |
| 52 | 26-4-16 | Problems on Free Electron Theory and Revision | V | ,, |  |  |
|  |  | **UNIT V – Preliminary Quantum Mechanics** |  |  |  |  |
| 53 | 26-4-16 | Origin of Quantum Theory – Black Body Radiation | V | ,, |  |  |
| 54 | 28-4-16 | Wein’s Law, Rayleigh Jean’s Law and Planck’s Law – Qualitative Treatment only | V | ,, |  |  |
| 55 | 28-4-16 | Einstein’s Mass Energy Relation, Nature of Light & Nature of Electromagnetic Radiation | V | ,, |  |  |
| 56 | 28-4-16 | De-Brogile’s Wave Length – Physical Significance and Properties of Matter Waves | V | ,, |  |  |
| 57 | 28-4-16 | Experimental Verification of De-Brogile Hypothesis – G.P. Thompson Experiment | V | ,, |  |  |
| 58 | 29-4-16 | Physical Significance of Wave Function – The Waves of Probability, Heisenberg’s Uncertainty Principle and its Applications | V | ,, |  |  |
| 59 | 29-4-16 | Schrodinger’s Time Independent Equation | V | ,, |  |  |
| 60 | 30-4-16 | Particle in One Dimensional Potential Box – The Relevant Plots | V | ,, |  |  |
|  | 30-4-16 | Problems on Preliminary Quantum mechanics and Revision  Guidelines in Exam Point of View | V | ,, |  |  |