Lesson Plan

Physics- PH-102

Paper – II: Electricity, Magnetism and Electromagnetic theory

Teacher name: SK Pandey

October 2020

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| Gradient of a scalar and its physical significance, Line, Surface and Volume integrals of a vector and their physical significance, Flux of a vector field, Divergence and curl of a vector and their physical significance, Gauss’s divergence theorem, |

November 2020

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| Stoke’s theorem. Derivation of electric field E from potential as gradient, Derivation of Laplace and Poisson equations, Electric flux, Gauss’s Law, Mechanical force of charged surface, Energy per unit volume.  Unit 2: Magnetism Magnetic induction, Magnetic flux, Solenoidal nature of vector field of induction, properties of (i) , (ii) , Electronic theory of dia and paramagnetism |

December 2020

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| Domain theory of ferromagnetism (Langevin’s theory), Cycle of magnetization- hystresis loop ( Energy dissipation, Hystresis loss and importance of Hystresis Curve)  Unit 3: Electromagnetism Maxwell equations and their derivations, Displacement current, Vector and Scalar potentials, |

January2021

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| Boundary conditions at interface between two different media, Propagation of electromagnetic wave (Basic idea, no derivation), Poynting vector and Poynting theorem. |

February 2021

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| Unit 4: A. C. Analysis A.C. circuit analysis using complex variable with (a) Capacitance and Resistance (CR) (b) Resistance and Inductance (LR) (c) Capacitance and Inductance (LC) and (d) Capacitance, Inductance and Resistance (LCR), Series and parallel resonance circuit, Quality factor (sharpness of resonance) |