

SSR Degree and PG College (Autonomous)

Department of Physics

Sem-III Important Questions

UNIT-I

Electrostatics

SAQ

1. Explain about electric lines of Force.
2. Define electric field and potential, Obtain the relation between electric potential and electric field intensity.
3. what is electric flux? Explain
- 4 write a short note on Conservative nature of Electric field.
5. Derive the Differential form of Gauss's law from integral form.

LAQ

1. state and prove derive Gauss's law in an expression electrostatics and derive an expression for electric field due to uniformly charged sphere.
2. Derive an expression for electric potential due to Charged spherical conductor at a point outside, on the Surface and inside the sphere.
3. Define intensity of the electric field. Calculate the electric field intensity due to a point charge.
4. Define energy density in electric field and derive an expression for energy density in electric field.

Unit-II

Magnetostatics

SAQ.

1. state and explain Ampere's law
2. Calculate the magnetic field due to long straight Conductor carrying Current.
3. Derive an expression for Torque on a rectangular Current loop placed in a uniform magnetic field.
4. Calculate the magnetic field induction due to a Solenoid.
5. State and Explain Biot-savart law.

LAQ

1. state and explain Biot-savart law. Calculate magnetic field 'B' due to a long straight wire by using it.

2. Explain the principle, construction and working of Ballistic Galvanometer.
3. State and explain Ampere's law, Derive an expression for the magnetic field due to solenoid Current.
4. state and Explain Biot-savart law. Derive ay expression for the force between two straight parallel conductors Carrying Current.

Unit-III

Electromagnetic Induction and Electromagnetic waves.

SAQ

1. state Faraday's law of electromagnetic induction.
2. Explain Lenz's law
3. state Maxwell's equations in integral and differential forms
4. Derive continuity equation in electromagnetism
5. write a short note Brewster's Law.

LAQ

1. what is Self Inductance? Define coefficient of self-induction and obtain an expression for Self-inductance of a Solenoid.
2. Derive Maxwell's equation in dielectric medium. show that EM wave velocity is equal to the Velocity of light.
3. Derive The modified form of Ampere's law and explain displacement Current.
4. Discuss the Transverse wave nature of Electromagnetic waves.

Unit-IV

Varying (Q) Alternating Current

SAQ

1. Explain LCR parallel resonance Circuit
2. write short notes on single phase and three phase.
3. Explain about maximum power transfer Theorem.
4. what ale the difference between active elements and passive elements?

5. Explain the term resistance, reactance and impedance
6. Explain the conversion of T-Network into T1-network

LAQ

1. Explain the Theory of series LCR circuit. Obtain its power factor.
2. state and prove Norton's theorem.
3. State and prove Thevenin's Theorem
4. Discuss the growth of charge in a circuit containing resistance, inductance and Capacitance when direct emf is applied.
5. state and prove Reciprocity theorem.