**Faculty of Science**

**B.Sc (Physics) III-Year, CBCS-V Semester Backlog**

**Examinations -January, 2021**

**PAPER: ELECTROMAGNETISM**

Time: 2 hours

Max Marks: 60

I. Answer any **Three** of the following questions

(3x20=60 Marks)

1. State Gauss law in electrostatics. Derive an expression for the electric field due to uniformly charged sphere.

2. (a).Define electric field strength and electric potential. Derive the relation between electric potential and electric field strength.

   (b).The charge on a spherical conductor is $3 \times 10^{-9}$C. Radius of the conductor is 0.1m. Find the potential on the conductor.

3. State Ampere's law. Derive an expression for force acting between two parallel conductors, there by define ampere.

4. Describe the construction, working and theory of a ballistic galvanometer.

5. (a) State Faraday's and Lenz's law of electromagnetic induction.

   (b) Write down integral and differential forms of Maxwell equations.

6. Derive the Plane wave equation and discuss the transverse nature of electromagnetic wave.

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