

Raiganj Surendranath Mahavidyalaya

Department of Physics

CBCS B.Sc PHYSICS General

2nd Semester, Internal Examination 2020

DC4 , GE2: Electricity and Magnetism

Full Marks: 10

Date: 30-12-2020

Time: 1 hour

Answer any 5 questions:

2 x 5 = 10

- 1. State and explain Gauss's theorem in electrostatics.**
- 2. Find the capacitance for a parallel plate capacitor.**
- 3. Establish continuity equation from Maxwell's equations.**
- 4. What is the difference between self induction and mutual induction?**
- 5. Write the differences between paramagnetism and ferromagnetism.**
- 6. State and discuss Biot-Savart Law.**
- 7. Define displacement current. What is the physical interpretation of displacement current?**
- 8. Explain the significance of Maxwell's second law : $\nabla \cdot \mathbf{B} = 0$. How does it help to define vector potential ?**
- 9. Calculate the force per unit length between two parallel wires at a distance 'd' apart, carrying I_1 and I_2 amount of currents respectively. Note that currents are flowing in opposite direction in two wires.**
- 10. For a linear circuit, state and explain Norton's theorem.**