ASSIGNMENT

NORTH GAUHATI COLLEGE

Department of Physics

2nd Semester Physics General/Subsidiary (Non-CBCS)

Paper code: 201, Current electricity, Electrostatics & Magnetism

Total Marks: 30

(The figures in the margin indicate the full marks for the questions)

1. If a current of 4.5 μA through a galvanometer causes a deflection of 1.5 cm on a scale 1 meter away. Find (i) the current sensitivity, (ii) potential difference across the galvanometer coil if its resistance is 120 ohms and (iii) maximum current for full scale deflection of 40 div. 5
2. Define electric susceptibility. Obtain a relation between dielectric constant 'K' and the electric susceptibility 'χ'. 5
3. Electric field intensity with in a conductor is always is zero. Why? The electric field in a certain region of space is $(3\hat{i}+5\hat{j}-8\hat{k})\times10^4$ NC^{-1}. Find the electric flux through an area $\left(4\hat{i}+3\hat{j}\right)\times10^{-3}$ m^2. 5
4. Find a relation between ionic polarisability and relative permitivity. A sample of phosphorus is uniformly polarised and polarisation produced is5×10^{-8} C/m^2. Find the total surface charge developed on an area $5m^2$ inclined at an angle 30^0 with direction of polarisation. 5
5. Write short notes on : (i) Magnetic hysteresis, (ii) A. C. motor 2×5=10

Nota Bene:

- Write your answers in A4 paper sheet mentioning clearly **your name, GU roll number, registration number, paper code etc.** at the front page of your answer sheet.
- You have to make a single PDF file of your answer sheets.
- You need to submit your respective PDF at the online portal of our college website or at the mail id: ngcphysicsdept@gmail.com.
- The submission due date is on or before **19th October, 2021**