Assignment: 3

1. Write a short note on continuity equation.
2. Explain boundary conditions between two perfect Dielectric materials
3. Derive continuity equation of current also explain relaxation time.
4. A circular loop located on x2 + y2 = 9, z = 0 carries a direct current of 10 A along aø. Determine H at (0, 0, 4) and (0, 0, -4).
5. A rectangular conducting loop with a resistance of 0.2 Ω rotates at 500 rpm. The vertical conductor at r1 = 0.03 m is in the field B1 = 0.25 ār T and other conductor is at r2 = 0.05 m and in the field B2 = 0.8 ār T. Find current flowing in the loop.
6. A non uniform field E = y ax+ x ay + 2az. Determine the work expended in carrying 2C from B(1,0,1) to A(0.8,0.6,1) along the shorter arc of the circle x2+y2=1 , z=1. Find the work required to carry same charge from B to A through straight line joining B to A in the same field.