CL23_Q1. Bring out the salient features of Drude-Lorentz theory and mention the drawbacks of the classical free-electron theory.

CL23_Q2. Define; (i) drift velocity (ii) relaxation time (iii) mean collision time (iv) mean free path and (v) mobility of electrons.

CL23_Q3. Distinguish between drift velocity and thermal velocity of an electron.

CL23_Q4. Give the microscopic form of Ohm's law and state whether the Ohm's law holds true at all temperatures.

CL23_Q5. Using the free electron model derive the expression for electrical conductivity in a metal.

CL23_Q6. The relaxation time of conduction electron in a metal is $3X10^{-14}$ s . If the density of electrons is $5.8x10^{28}$per m^3 , calculate the resistivity of the material and mobility of electrons.