**Ques:**

**The relaxation time τ is nearly independent of the applied E field whereas it changes significantly with temperature T. First fact is responsible for Ohm’s law whereas the second fact leads to a variation of ρ with temperature. Elaborate why?**

**Ans:**

Relaxation time is the time interval between two successive collisions of the electrons.

It is defined as

τ = mean free path/rms velocity of electrons

Usually, the drift velocity of the electrons is small because there is a frequent collision between the electrons.

ρ = 1/σ = m/ne2τ