> Date ☐ Mon ☐ Tue ☐ Wed ☐ Thu ☐ Fri ☐ Sat ☐ Sun

6 FEB 2024 P-1

Name:- Dr Giridhar Kumar
Assistant Professor (Guest).
Department of Physics, Maharaja College Ara.

Notes- Degree-II(H). B.Sc.

Topic:- Introduction of Peltier and Thomson effect.

⇒ Peltier effect is associated with an electric current which when is passed through two disimilar conductor connected to form a thermo-couple, heat is evolved at one junction and absorbed at the other. The absorption and evolution of heat depends on the direction of flow of current.

⇒ Thomson effect is related to the emf that develops between two parts of the single metal when they are at defferent temp. Thus thomson effect is the

absorption or evolution of heat along a conductor when current passes through it when one end of the conductor is hot and another is cold.

Peltier coefficent is ~~deffined~~ defined as the amount of heat energy absorbed or evolved due to peltier effect at the junction of two dissimilar metals when one coulumb of charge passes through the junction. If a current density J is passed through a homogeneous conductor, the Thomson effect predicts a heat production rate $\dot{q}$ per unit volume

$$\dot{q} = -K J \cdot \nabla T$$

∇T is gradient of temp T and K is the Thomson coefficient.