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PG CBCS
M.SC. Semester-III Examination, 2021
PHYSICS
PAPER: PHS 396A (SPL PRACTICAL)
(SOLID STATE PHYSICS I)

Full Marks: 50

Time: 3 Hours

Answer any TWO questions of the following:

2 X 25=50

1. Write the expression for Hall voltage with magnetic field and current through semiconductor. Draw a figure for above two cases. What is the effect of temperature (T) on hall voltage (V_d)? Draw a figure for V_d vs T.
2. Draw power-load characteristics of a solar cell. Draw open ckt. voltage-Lamp distance, short ckt. current-Lamp distance characteristics of a solar cell when it will be illuminated with a variable intense light source (by changing distance). Draw voltage-load and current-load characteristics at a constant illumination.
3. Draw ckt. diagram for study the characteristics of Diac & Triac. Draw those characteristics curve against varying DC voltage. Show the current vs. voltage when those are driven by 10 volt of sinusoidal and square wave. State some application of Diac & Triac.
4. State 5 different types of magneto resistances, and their relations with applied magnetic field with short description of origin.
5. Draw ckt. diagram and different I-V characteristics of UJT & SCR characteristics. Describe short working principle of UJT & SCR.
6. Draw Hysteresis curve of demagnetized and non-demagnetized ferromagnetic magnetic steel (MS). Explain how to calculate energy loss/ cycle from the graphical representation of Hysteresis. Explain the difference between B-H and M-H curve.
