PRABHAT KUMAR COLLEGE, CONTAI

M. Sc. 4TH Semester Examinations 2021
(Under CBCS pattern)

Subject : Physics

PAPER/COURSE – PHS: 495A
Solid State Physics Practical -II

FULL MARKS: 50

TIME: 03 Hr.

Candidates are required to give their answers in their own words as far as practicable.

The figures in the right-hand margin indicate full marks.

Attempt any Two (02) of the following: ***2 x 25 = 50***

1 What is meant by Lande g-factor and explain experimental process to determine the Lande g-factor using Electron Spin Resonance spectrometer. Explain possible source of error of this experiment.

2 Discuss how do you measure magneto resistance of a sample experimentally. Can all materials have magnetoresistance? What would be the application of magnetoresistance?

3 Write down the working principle of a solar cell and discuss details about the *I-V* characteristics of a solar cell. Discuss the effect of series resistance and shunt resistance on the *I-V* characteristics of a solar cells

4 What do you mean by SCR device. Discuss the methodology to study the *I-V* characteristics of a SCR device.

5. Discuss the methodology for dielectric measurement and define Curie temperature of polycrystalline ferroelectric sample. What are the precautions need to be taken for smooth running of the experiment?

6. Write down the working principle of Hall effect experiment. Discuss the details methodology with circuit diagram. What would be the effect of temperature on Hall coefficient of a lightly doped semiconductor?