

SHRIMATHI DEVKUNVAR NANALAL BHATT VAISHNAV COLLEGE FOR WOMEN
(AUTONOMOUS)

(Affiliated to the University of Madras and Re-accredited with 'A+' Grade by NAAC)
Chromepet, Chennai — 600 044.

B.Sc.(Physics) - END SEMESTER EXAMINATIONS APRIL-2023

SEMESTER - VI

20UPHCT6013 - Solid State Physics

Total Duration : 2 Hrs 30 Mins.

Total Marks : 60

Section B

Answer any **SIX** questions ($6 \times 5 = 30$ Marks)

1. Explain briefly the crystal structures of
 - (i) Sodium chloride and
 - (ii) Zinc blende cubic structure.
2. Discuss the important features of Miller indices.
3. Illustrate the different types of polarization with suitable diagrams.
4. Differentiate between Type I and Type II superconductors.
5. Predict Bragg's law in one dimension and explain why crystals are used in diffraction studies.
6. Discuss different types of magnetic materials.
7. What is meant by Dielectric loss? Explain the effect of frequency on polarization.
8. Compare High temperature and Low temperature superconductors.

Section C

Answer any **THREE** questions ($3 \times 10 = 30$ Marks)

9. Describe the 14 types of Bravais lattices in three dimensions with suitable diagrams.
10. Narrate the rotating crystal method of determination of crystal structures.
11. Derive Curie Weiss law and determine the Curie temperature from it.
12. Deduce Clausius-Mosotti relation and explain its use in predicting the dielectric constant of solids.
13. Interpret BCS theory for superconductors.
