

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 2025

SEMESTER - VI

22UPHCT6013 - Solid State Physics

Total Duration : 2 Hrs.30 Mins.

Total Marks : 60

Section B

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

1. What are Miller Indices? How will you determine the Miller indices of a given plane? Mention the distinct features of Miller Indices.
2. Derive the Braggs Law in one dimension.
3. Explain Weiss theory of paramagnetism.
4. Discuss the frequency effects on polarisation.
5. Explain Meissner Effect in superconductors. List out the application of superconductors.
6. Calculate the (c/a) ratio and density of packing of HCP structure.
7. Compare dia, para and ferro magnetic materials.
8. Explain the experimental method of determining dielectric constant of a material.

Section C

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

9. Describe the seven crystal system and Bravais lattice types with a neat diagram.
10. Explain the structure analysis of water molecule.
11. Describe the Langevin's theory of diamagnetism.
12. a) Explain in detail on Ionic polarisability.
b) Derive Clausius - Mossotti relation.
13. Give a detail account on BCS theory of superconductivity .
compare Type I and Type II superconductors.
